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THE

MEDICAL & SURGICAL

REGISTER:

CONSISTING CHIEFLY OF

CASES

IN

THE NEW-YORK HOSPITAL.

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BY

JOHN WATTS, Jun. M. D. VALENTINE MOTT, M. D.

AND

ALEXANDER H. STEVENS, M. D.

N.Y. ACADEMY OF MEDICINE LIBRARY

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EXPLANATION OF PLATES.

PLATE I.

Represents the tumour very correctly, with its elevation above and below the clavicle, and the extent of it towards the acromion scapulæ, and likewise as it encroached upon the trachea. The form of the external incision with the subsequent steps of the operation, as far as can be given in a drawing, are also shown.

a, *a*, *a* The angles of the integuments as turned over upon the tumour.

b The sternal and a part of the clavicular portion of the sterno cleido mastoid muscle, raised, and reflected over upon the integuments.

c The sterno hyoid muscle laid over upon the trachea.

d The sterno thyroid muscle also raised and reflected inwards over the trachea.

PLATE II.

Exhibits the morbid appearances which were found upon dissection.

a, *a*, *a* View of the ulcer as it extended under the clavicle, and towards the trachea.

b The upper part of the arteria innominata, about which the ligature had been applied, appearing rough and irregular from the erosion of the ulcer.

c A coagulum of blood adhering pretty firmly to one side of the innominata.

d Contracted and puckered appearance of the upper part of the innominata, and particularly of its internal coat.

e Arteria innominata cut open from the aorta.

f Anomalous branch of the innominata.

g, *g* The aorta.

h Left carotid.

i Left subclavian.

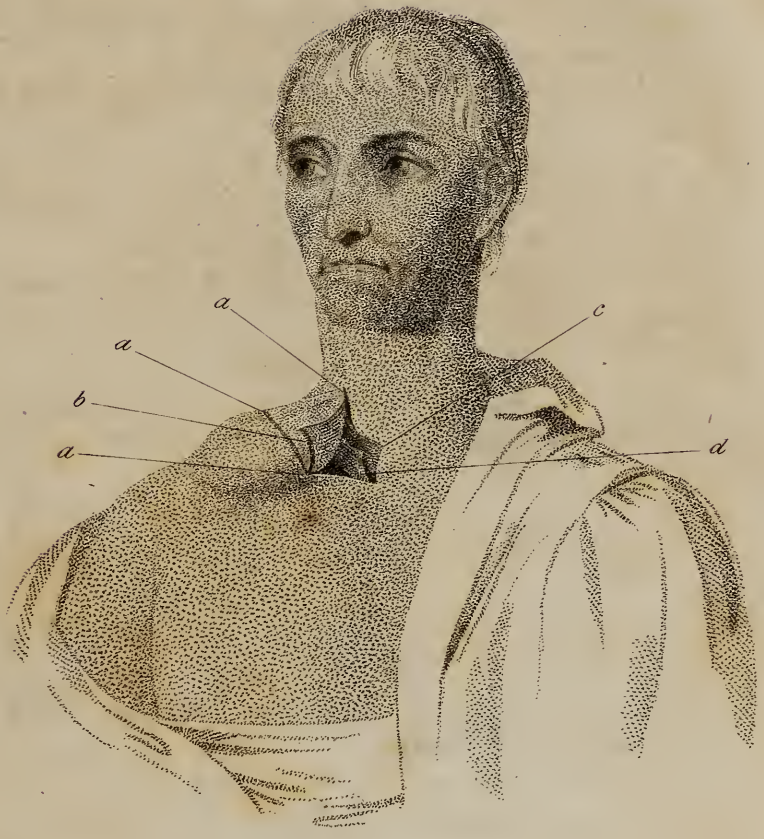
k The heart collapsed.

l Sternum and clavicle turned up.

m, *m* Pleura much thickened.

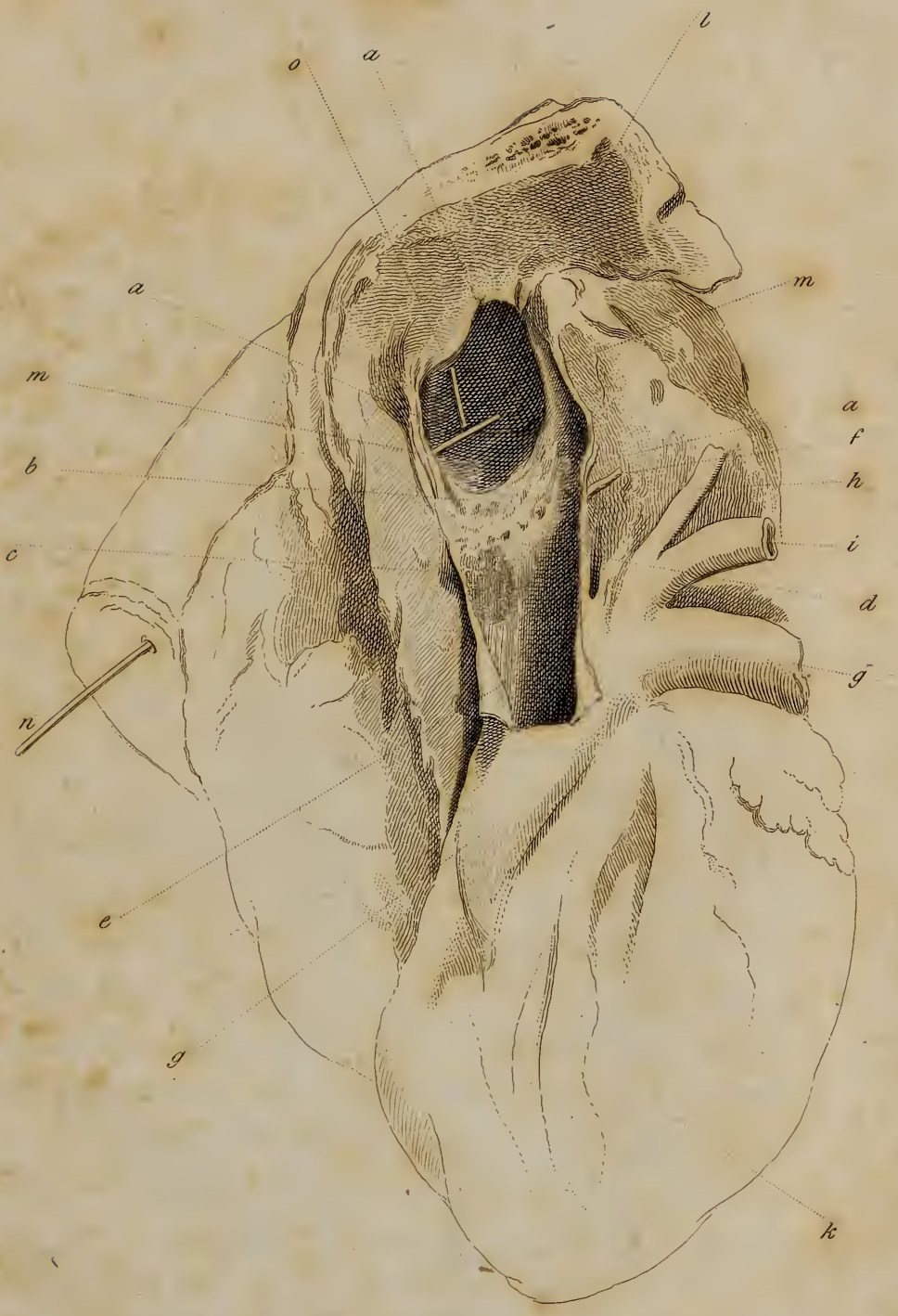
n Probe introduced into the axillary artery, passed through the subclavian, and appearing in the cavity of the ulcer.

o A small bougie passed along the common carotid, and its extremity also seen in the ulcer.



A. Anderson. Sc.

Pl. II.



A. Anderson del. & sc.

PREFACE.

LARGE and well-regulated Hospitals present the most frequent and best opportunities of investigating the character of diseases, and open to the public an extensive field for the exercise of the most charitable feelings. The progress of civilization, moral improvement, and a multiplied and condensed population, have almost invariably led to the erection of such institutions: and it is a pleasing reflection, that, while they have served to gratify and improve the benevolent dispositions of mankind, they have, at the same time, contributed very largely to the advancement of that science upon which their utility and excellence chiefly depend.—Hence in them, Charity and Science are emphatically united in promoting the public welfare, exciting the rich to acts of praiseworthy emulation, and stimulating the medical profession to the display of the most honourable and disinterested exertions.

The State of New-York can contemplate, with much benevolent complacency, the libe-

ral provision that is made in its maritime metropolis for the reception of the sick poor, and of such sick persons as are destitute of homes, or of the kind offices and necessary attention of friends: to such, the New-York Hospital at once furnishes support and relief. "Founded and supported on the principles of "the Christian Religion and general benevo- "lence, without respect to any sects or dis- "tinctions, political, civil, or religious, all per- "sons, whose maladies render them fit objects "of such a charity, are considered as equally "entitled to the benefits of this Hospital." In addition to the numerous contributions of individuals, the bounty of the Legislature has been frequently and munificently bestowed on this Institution, whose Governors, with the most unremitted care and attention, have watched over its interests, and rendered it, as far as circumstances would permit, tributary to the instruction of gentlemen, who resort to it from every section of the Union.

It is not the destitute only, or individuals in humble life, who are benefited by public Hospitals; society at large derives an important advantage, in the improvement which they impart to medical knowledge. The Student of Medicine has an opportunity of

devoting a large portion of his time to reading and studying the various branches connected with his future profession, while, at the same time, he may witness, within the compass of such an institution, a number and variety of diseases which it would be impossible for him to see in private practice, during his whole professional life. Add to these advantages, courses of Clinical Lectures, which are usually delivered in Hospitals on the subjects of both Medicine and Surgery, and it will be seen that the pupil has here combined for his instruction, the detail of the reasonings and speculations of Medical writers, and the actual practical illustrations of the varied appearances of disease, with the peculiar changes produced by the operations of the different remedies employed. The interest and welfare of the patients, instead of being made subservient merely to the purposes of education, are connected and almost identified with the best feelings and character of the physicians to whose care they are intrusted. The various duties connected with their professional responsibility, are so many incitements to the faithful discharge of the trust reposed in them: for, in their capacity of public teachers, they as-

sume the obligation, and enter into a public pledge, to explain the reasons for every thing that is done. The manner of executing their duties, and the success of their practice, is thus employed to determine their pretensions to science and skill, and to establish or invalidate the truth of their own, or of the doctrines of others, without the means of screening such errors as are too often concealed in private practice.

With the view of improving these advantages to the Students of Medicine who visit New-York for the completion of their education, and of co-operating with the Patrons and Governors of the Hospital, in rendering its usefulness as extensive as possible, the Editors some time since contemplated a work that should give publicity, not only to singular and interesting cases, but, generally, to such as would exhibit the practice of the Hospital. A work of this kind, it was thought, would have a beneficial influence on the practice of the house, in furnishing new motives for the continued exercise of diligence and attention on the part of the Medical Attendants, and in perpetuating such facts and observations as their experience might develope. Since that time they have seen with pleasure a very valuable work published in Dublin,

under the title of "The Dublin Hospital Reports and Communications." It is believed to contain a mass of observation and experience that cannot fail to be highly interesting and instructive to the great body of the profession. The Editors of this kindred Register bear testimony to the professional services of their transatlantic brethren, and recollect with pleasure the works of this kind that have been so ably conducted by Home, Ferriar, Bell, and others, in Great Britain, and on the Continent of Europe. Periodical publications, in every department of Science, have been productive of great and extensive benefit; not to those only who have been more immediately connected with the subjects and pursuits to which they appertain, but also to the communities generally through which they have circulated—by extending and improving the bounds of letters and of general knowledge, and by giving to the mind an ennobling direction and occupation—thus furnishing the strongest resistance to the moral and intellectual apathy and disease engendered by ignorance and corruption.

As a collection of cases, this work will offer to the Student an opportunity of referring to written histories of particular diseases that may have come under his immediate in-

spection while attending at the Hospital; and combining the advantages of a faithful and ample Note-book, will contain an account of all the novel forms of disease that may occur—the new or remarkable operations that may be performed: together with such cases, both in Medicine and Surgery, as are best suited to convey the most useful practical lessons. In selecting cases, the Editors will not confine themselves to such as may have terminated favourably; being well aware that much valuable information may oftentimes be gathered from witnessing, reading accounts of, and reflecting upon, surgical operations and diseases that have terminated fatally. Neither do they intend to be restricted to the insertion of such cases only as may occur in the Hospital—the pages of the Register will be open to the introduction of any thing interesting in regard to Medicine or Surgery, either in public or private practice. They wish it, however, to be understood, that it is their intention to comprise in this work, a detail of practical facts and occurrences as they present themselves in the human body when under the influence of accident or disease; and the various phenomena that are exhibited by the operations of medi-

cine; rather than to occupy themselves and their readers with speculations and reasonings that may lead to no useful results, and which may even depreciate the value of a plain insulated fact.

Designed as this work is, more immediately for the use of the Students of the Hospital, it is hoped that it will not prove altogether uninteresting to the Profession generally. It will furnish to private and distant practitioners of medicine, the means of instituting a comparison of the diseases of one section of the country with those of other parts of the United States, and the several modes of practice that are adopted and applied in their respective places. Accounts of such comparisons will be thankfully received and acknowledged in the Register; and as they may be productive of much private and public benefit, it is trusted that they will not be withheld. They may conduce to the establishing of greater unity of practice, or to the promulgating a knowledge of the causes and necessity of the actual difference.

Each individual will be responsible for the accuracy of the cases and facts he communicates, while, at the same time, he will exercise the privilege of connecting therewith such

remarks as may be deemed apposite. Free access will be given to papers on physiological and pathological subjects; the discovery of new articles of the materia medica from any of the great kingdoms of nature; together with accounts of the rise and progress of epidemics, as they may occur in the United States.

As this is the first work of this description ever attempted in this country, and may lead to exertions of much greater utility and importance, it is hoped that it will meet with the approbation of the Medical Profession, and prove an additional incitement to the publication of papers that may enlarge the bounds of Medical Science, and mitigate some of the numerous ills of mortality.

A number of this work will appear as often as suitable materials shall be offered.

Nov. 1, 1813.

REFLECTIONS

ON

SECURING IN A LIGATURE

THE

ARTERIA INNOMINATA.

TO WHICH IS ADDED,

A CASE

IN WHICH THIS ARTERY WAS TIED BY A

SURGICAL OPERATION.

BY VALENTINE MOTT, M. D.

PROFESSOR OF SURGERY IN THE UNIVERSITY OF NEW-YORK, &c.

Since the publication of Allan Burns's invaluable work on the Surgical Anatomy of the Head and Neck, I have been in the habit of showing in my surgical lectures the practicability of securing in a ligature the Arteria Innominata; and I have had no hesitation in remarking that it was my opinion, that this artery might be taken up for some condition of aneurisms; and that a Surgeon, with a steady hand and a correct knowledge of the parts, would be justified in doing it. I felt myself warranted in this, from the singular success which this celebrated anatomist informs us attended his injections, and from my

own investigations of this subject. If the right arm, right side of the head and neck, can be filled with injection, after interrupting its passage through the innominata, as we believe they can, who can doubt the possibility of the blood to find its way there also, as it will pass through thousands of channels, which art could not penetrate even by the finest injections? The well known anastomoses of arteries, and the great resources of the system in cases of aneurism, encouraged me to believe, that this operation might be performed with reasonable prospects of success. With all this sanction, and the analogy of the other great operations for aneurism, I could not for a moment hesitate in recommending and performing the operation.

The following operation, as the steps of it will show, was performed with the two-fold intention: 1st, of tying the subclavian artery before it passes through the scaleni muscles, if it should be found in a fit state; and 2dly, to tie the arteria innominata in case the former should be diseased or too much encroached upon by the aneurismal tumour.

Michael Bateman, aged 57 years, was born in Salem, Massachusetts, and by occupation a seaman. He was admitted into the New-York hospital on the 1st of March, 1818, for a catarrhal affection, having at the same time his right arm

and shoulder much swollen. At the time of his admission the catarrh being thought the most considerable disease of the two, he was received as a medical patient, and placed under the care of the physician then in attendance. During the three first weeks of his residence in the house, the catarrh had greatly yielded to the remedies prescribed. The inflammation, which had produced an enlargement of the whole superior extremity, extending itself to the muscles of the neck on the right side, was also gradually subsiding.

A tumefaction, however, situated above and posterior to the clavicle, at first involved in the general swelling, and not to be distinguished from it, began to show itself. This resisted the remedies which were effectual in relieving the other, and became more distinct and circumscribed as the latter subsided; at length assuming the form of an irregular tumour.

The history which he gave of the case is as follows: He said, about a week before he entered the hospital, while at work on ship-board, his feet accidentally slipped from under him, and he fell upon his right arm, shoulder, and the back part of his head; that he felt but little inconvenience from the fall, and after a short time returned to his duty. Two days subsequent to this, however, he felt pain in the shoulder, and the succeeding night was unable to lie upon it

in bed. The whole arm and shoulder then began to swell, and became so painful that he was unable any longer to perform his duty as a seaman. The ship having arrived in New-York, he was admitted into the hospital.

For some time after the general swelling had subsided, leaving the tumour distinct and circumscribed, no circumstance occurred which gave rise to a suspicion of its being aneurismal. The enlargement was thought to be a common indolent tumour, and was repeatedly blistered, with a view to discuss it. The tumour gradually diminished under this treatment; though a considerable time elapsed before any very striking change took place.

At length a faint and obscure pulsation was perceived; still it was a matter of doubt whether the tumour was aneurismal, or whether the pulsatory motion was communicated to it by the subclavian artery, immediately over which it was situated. From its firm unyielding nature upon pressure, the latter was considered as the most probable, and the blisters were continued as before. During the whole of this time the patient had worn his arm in a sling, the motions of it being very limited, and always attended with pain.

The patient remained in this state for several days, without any marked change either in his feelings or in the appearance of the tumour.

On the 3d of May, at 6 o'clock in the afternoon, the patient complained that he "felt something give way in the tumour," that his shoulder was very painful, and that he was able to raise it only a few inches from his side. The tumour at this time suddenly increased about one third, and a pulsation was distinctly perceptible. Its most prominent part was below the clavicle; at which place the pulsation was most distinct. The portion above the clavicle was also much enlarged; it still however had its usual firmness, except in one point near its centre.

May 4th.—The tumour is evidently increased, that portion of it more particularly which is below the clavicle; it is not as firm and resisting as it has been. Pulsation is not so distinct as yesterday, but appears to be more diffused.

He was this day transferred to the surgical side of the house, and became my patient. The cough having become comparatively slight, the tumour appeared to be the most urgent disease, and, in my opinion, to call for prompt attention. The arm is now perfectly useless, and any motion at the shoulder joint gives him severe pain. The patient is naturally of a spare habit, and from the nature of his disease, and the confinement to which he has been subjected, has become much reduced in strength.

May 5th and 6th.—The tumour is still pro-

gressing, and the pain in the shoulder is also more severe. During the three last days his medicines have been discontinued, except that he is allowed to rub the parts about the clavicle with volatile liniment.

On the 7th I directed a consultation of my colleagues to be called, consisting of Drs. Post, Kissam and Stevens. I now stated to them that I wished to perform an operation which would enable me to pass a ligature around the subclavian artery, before it passes through the scaleni muscles, or the arteria innominata, if the size of the tumour should prevent the accomplishment of the former. This I was permitted to do, provided the patient should assent, after a candid and fair representation was made to him of the probable termination of his disease; and that the operation, though uncertain, gave him some chance, and, as we thought, the only one of his life.

Dr. Post, at my request, communicated with him privately on this subject, and after a full explanation of the nature of the case, my patient requested to have any operation performed which promised him a chance for his life, saying that in his present state he was truly wretched.

May 8th, 9th, and 10th.—The tumour is acknowledged by all to be increasing, and it is thought proper not to defer the operation any

longer. I therefore requested that preparation be made for performing it to-morrow.

It is difficult to give an idea of the size of a tumour so irregular in its form, and so peculiarly situated. A thread passed over it, from the lower part of that portion of it which is below the clavicle, extending upward obliquely across the clavicle toward the back of the neck, will measure five and a quarter inches.—Another crossing this at right angles one inch above the clavicle, will measure four inches; two and a half inches of the thread are on the sternal side of the former, and one and a half on the acromial. It rises fully an inch above the clavicle, which, added to the depression below the clavicle on the opposite shoulder, will make the size of the swelling above the natural surface about two inches.

May 11th.—One hour before the time assigned for the operation, the patient appeared perfectly composed, and apparently pleased with the idea that the operation afforded him a prospect of some relief. He was directed to take of Tinct. Opii. 70 drops.

No difference can be perceived in the pulsation of the arteries in the two extremities; his pulses are uniform and regular, each beating 69 in a minute.

He was placed upon a table of the ordinary

height, in a recumbent posture, a little inclining to the left side, so that the light fell obliquely upon the upper part of the thorax and neck. Seating myself on a bench of a convenient height, I commenced my incision upon the tumour, just above the clavicle, and carried it close to this bone and the upper end of the sternum, and terminated it immediately over the trachea; making it in extent about three inches. Another incision about the same length, extended from the termination of the first along the inner edge of the sterno cleido mastoid muscle. The integuments were then dissected from the platisma myoides, beginning at the lower angle of the incisions, and turned over upon the tumour and side of the neck.

Cutting through the platisma myoides, I cautiously divided the sternal part of the mastoid muscle, in the direction of the first incision, and as much of the clavicular portion as the size of the swelling would permit, and reflected it over upon the tumour. The internal jugular vein was encroached upon by the swelling, which made this part of the operation of the utmost delicacy, from the morbid adhesion of that part of the clavicular portion of the muscle to it, which was detached. I separated this portion of the muscle to as great an extent, however, as the case would possibly allow, to make room for the subsequent steps of the operation; only a part of the vein

was exposed. The sterno hyoid muscle was next divided, and then the sterno thyroid, and turned upon the opposite side of the wound, over the trachea. This exposed the sheath containing the carotid artery, par vagum, and internal jugular vein. A little above the sternum, I exposed the carotid artery, and separated the par vagum from it; then drawing the nerve and vein to the outside, and the artery towards the trachea, I readily laid bare the subclavian about half an inch from its origin. In doing this, the handle of a scalpel was principally used, nothing more being required but to separate the cellular membrane, as it covers the artery. I judged it would be very imprudent to introduce a common scalpel into so narrow and deep a wound, especially as it would be placed between two such important vessels or parts, as the carotid and par vagum, and where the least motion of the patient might cause a wound of one or the other of them. The proper instrument, in my opinion, for this part of the operation, is a knife, the size of a small scalpel, with a rounded point, and cutting only at the extremity; this was used, and found to be very convenient for this stage of the operation. It can be introduced into a deep and narrow wound, among important parts, without the hazard of dividing any but such as are intended to be cut.

This knife is contained in a set of instruments admirably calculated for this and other operations on arteries deeply seated, and which I shall mention more particularly hereafter.

On arriving at the subclavian artery, it appeared to be considerably larger than common, and of an unhealthy colour; and when I exposed it to the extent of about half an inch from its origin, which was all that the tumour would permit, to ascertain this circumstance more satisfactorily, my friends concurred with me in opinion that it would be highly injudicious to pass a ligature around it. The close contiguity of the tumour would of itself have been a sufficient objection to the application of the ligature in this situation, independent of the apparently altered state of the artery. Art in this case could not anticipate any thing like the institution of the healthy process of adhesive inflammation in an artery in the immediate vicinity of so much disease. The Pathology of arteries has long since taught us, that ulcerative inflammation, and all its train of consequences, would have been the inevitable result. This was the fate of the only case, in which a ligature has been applied to the artery in this situation. The operation was performed by that eminent Surgeon of Dublin, Dr. Colles.

While separating the cellular substance from

the lower surface of the artery, with the smooth handle of an ivory scalpel, a branch of artery was lacerated, which yielded for a few minutes a very smart hemorrhage, so as to fill the wound perhaps six or eight times. It was about half an inch distant from the *innominata*, and from the stream emitted, was about the size of a crow-quill. It stopped with a little pressure. I can scarcely believe this to have been the internal mammary, from the hemorrhage ceasing so quickly; though, from its situation, it would appear so; and if from some irregularity it were not the superior intercostal, it must have proceeded from an anomalous branch.

With this appearance of disease in the subclavian artery, it only remained for me either to pass the ligature around the arteria innominata, or abandon my patient. Although I very well knew, that this artery had never been taken up for any condition of aneurisms, or ever performed as a surgical operation, yet with the approbation of my friends, and reposing great confidence in the resources of the system, when aided by the noblest efforts of scientific surgery, I resolved upon the operation.

The bifurcation of the innominata being now in view, it only remained to prosecute the dissection a little lower behind the sternum. This was done mostly with the round edged knife,

taking care to keep directly over and along the upper surface of the artery. After fairly denuding the artery upon its upper surface, I very cautiously, with the handle of a scalpel, separated the cellular substance from the sides of it, so as to avoid wounding the pleura. A round silken ligature was now readily passed around it, and the artery was tied about half an inch below the bifurcation. The recurrent and phrenic nerves were not disturbed in this part of the operation.

As most surgeons who have performed operations upon large arteries, in deep and narrow wounds, complain of the embarrassment which has attended the application of the ligature, I am happy in the present opportunity to have it in my power to recommend an instrument, or contrivance, which, in my opinion, is calculated to surmount all difficulties. This set of instruments consists of several needles of different sizes and curvatures, with sharp and blunt points, and having in each two eyes. The needles screw into a strong handle or shank of steel: two strong instruments in handles, with a ring or eye in the extremity similar to a tonsil iron, and perhaps they may be called ligature irons: a small knife rounded at the extremity like a lancet for scarifying the eyes, and a small hook at the extremity of a steel shank, also fixed

in a strong handle. These instruments are the invention of Drs. Parish, Hartshorne, and Hewson, of Philadelphia. They are the result of investigations made upon the dead body, as to the best mode and place for tying the subclavian artery on the *acromial side* of the *scaleni muscles**.

With the ligature introduced into the eye of one of the smallest blunt needles, which was nearest the shank of the instrument, I pressed down the cellular substance and pleura with the convex part, and very carefully insinuated it from below upwards, under the artery. The point of the needle appearing on the opposite side of the artery, I introduced the hook into the other eye of it; then unscrewing the shank, the needle was drawn through with the utmost facility, leaving the ligature underneath the artery.

In the application of the ligature to this artery, I would invite the attention of those who perform it, to a circumstance which, in my opinion, is somewhat important: it is to pass the ligature from below upwards, in order to prevent the pleura from being wounded. From the use of these instruments repeatedly, I would also recommend that the hook be fixed in the eye of the needle before the shank is unscrewed, otherwise very considerable difficulty will be expe-

* See Dr. Parish's Paper, Eclectic Rep. vol. iii. p. 229.

rienced in finding it, and even when felt, not easily introduced, from the want of firmness which the handle part of the instrument would afford.

I now made a knot in the ligature, and with my forefingers carried it down to the artery, and drew it a little so as partly to close its diameter and arrest the column of blood gradually. This was continued for a few seconds to observe the effect produced upon the heart and lungs; when no change taking place, it was drawn so as to stop the circulation entirely, as was shown by the radial artery of the right arm, and the right temporal immediately ceasing to pulsate. The knot was drawn more firmly by the ligature irons, and a second knot applied in the same manner.

In no instance did I ever view the countenance of man with more fluctuations of hope and fear, than in drawing the ligature upon this artery. To intercept suddenly one fourth of the quantity of blood, so near to the heart, without producing some unpleasant effect, no surgeon, *à priori*, would have believed possible. I therefore drew the ligature gradually, and with my eyes fixed upon his face, I was determined to remove it instantly if any alarming symptoms had appeared. But, instead of this, when he showed no change of feature or agitation of body, my gratification was of the highest kind.

Dr. Post now asked him if he felt any unpleasant sensation about his head, breast, or arm, or felt any way different from common, to which he replied, that he did not.

Immediately after the ligature was drawn tight, the tumour was reduced in size about one third, and the course of the clavicle could be distinctly felt.

The parts were now brought into coaptation, and the integuments drawn together by three interrupted sutures and straps of adhesive plaister; a little lint and additional straps completed the dressing. Three small arteries were tied in the course of the operation: the first was under the sternum, and divided with the sternal part of the mastoid muscle, and from its course may have been a branch of the internal mammary reflected upwards; the second, in raising the inner edge of the mastoid muscle, about the upper angle of the longitudinal incision, and must have been the most descending branch of the superior thyroid; and the third, was a branch of the inferior thyroid, and cut while raising the sterno thyroid muscle. The patient lost perhaps from two to four ounces of blood, most of which came from the ruptured branch of the subclavian. The operation occupied about one hour.

The curved spatulas recommended by Dr. Colles, I found of great use in the operation. I

provided three for this purpose, two broad, and one narrow, bent at right angles, and sufficiently firm. After raising the muscles, they were of the greatest advantage in keeping separated the carotid artery and par vagum, as likewise the divided muscles; they served also another very useful purpose, that of preventing by their equable pressure the constant oozing from the smaller vessels; and the little room taken up in a small and deep wound, will give them a great superiority over the fingers introduced.

Ten minutes after the operation the pulse is regular, and not the least variation can be perceived; it beats 69 strokes in a minute; the patient says he is perfectly comfortable, and has no new or unnatural sensation, except a little stiffness of the muscles of the neck, which he thinks is owing to the position in which his head was placed during the operation; the temperature of the right arm is a little cooler than the left; his breathing has not been the least affected by the operation, but is perfectly free and natural.

2 o'clock, P. M.—Patient expresses a desire to eat, and is directed a little thin soup and bread; the temperature of both arms is very nearly the same; breathing perfectly natural; pulse as before.

3 o'clock P. M.—There is still a trifling difference in the temperature of the two arms; ordered the right to be wrapped in cotton wadding; not the least unpleasant symptom has as yet made its appearance.

6 o'clock P. M.—Complains of a little pain in his head, not more on one side however than the other; describes it as a common head-ache: the pain of the shoulder and arm much less than before the operation: no difference can now be perceived in the temperature of the two arms; pulse a little accelerated, and perhaps a little full.

9 P. M.—Patient complains of head-ache; skin is rather hotter than natural; pulse strong and full, and beats 75 in a minute; the carotid on the left side of the neck is observed to be much dilated and in strong action; tongue moist and clean.

9½ P. M.—Symptoms continuing the same, directed him to be bled from the left arm to ℥xvj. After bleeding the pulse fell 7 beats, and was less full. Complains of some thirst; let him drink common tea.

12 P. M.—Patient has slept a little; is free from pain; pulse full and less frequent, beats 60; skin moist and of a natural temperature.

Second day, 2 o'clock A. M.—Patient enjoys a

natural and undisturbed sleep; respiration free, and performed without the least difficulty.

5 A. M.—He has rested well the last three hours. Says he has a slight head-ache, and a little pain in the right elbow: the latter he attributes to the position in which his arm has lain during sleep; pulse full, but not so tense as before the venesection; skin natural and moist; temperature of both arms the same. He states that he can now incline more upon the right shoulder than he has been able to do since the second day after he received the injury,

9 A. M.—Pain in the head no way troublesome; skin moist and of natural temperature; tongue clean; says his neck feels stiff, but is not painful; has no difficulty in swallowing. His cough has thus far been much less frequent than before the operation: expectoration is also attended with less difficulty; pulse 75, full, but not tense; has taken a dish of coffee, and some bread; complains of some thirst; directed a solution of supertartrite of potass to be drank occasionally.

10 A. M.—Symptoms as before; the veins of the fore-arm and hand since the operation have been as much distended as previous to it, and upon compressing them so as to stop the circulation, and allow the vein to become empty for some distance above, the column of blood is seen

to distend the vein immediately upon the removal of the pressure, plainly showing that the circulation is going on with considerable rapidity, although no pulsation has been felt in the brachial or radial arteries. The radial artery can be easily distinguished by the fingers, and seems to be filled with blood. There is evidently a pulsation in the anterior branch of the temporal artery, just as it is passing a little above the exterior canthus of the orbit; the left external carotid is beating with increased action, and appears larger than natural.

3 P. M.—Has taken a light dinner, and complains of a little head-ache; pulse has become tense, and is also increased in frequency; skin is considerably hotter than natural; tongue too indicates a febrile action: was bled to ℥viij. and directed to drink freely of a solution of the supertartrite of potass.

10 P. M.—Since the last report he has become more comfortable; complains of no pain, and says he lies perfectly easy; pulse increased in frequency to 78, but of the natural soft feel; the right side of the face has been at times a little cooler than the left, and is so at the present time: it is, however, not so much so as to be perceptible to the patient; temperature of the right arm natural: that of the left, and the whole body, is above the natural standard, but it is

moist; tongue is clean: having had no evacuation from his bowels since the operation, is directed to take a saline cathartic, in divided doses.

1 A. M.—Complains of nothing; has not slept any; cathartic has operated twice.

Third day, 5 A. M.—Has had no sleep in consequence of the operation of the medicine, it having produced free evacuations in the course of the night; skin not so moist, but of natural temperature; the two arms have equal warmth; pulse full, and rather more frequent than last evening: says his right elbow is a little painful, and the arm feels tired. The complete flexion of the arm at the elbow is prevented by a little rigidity of the extensor muscles.

9 A. M.—He is now comfortable, has slept a little, and feels refreshed; pulse is full, and rather more frequent than natural; skin natural and moist: the size of the tumour is considerably diminished; has taken a dish of chocolate and some rusk.

11½ A. M.—Patient still free from pain, or any uneasiness; medicine has operated seven times; skin not hotter than natural, and moist; tongue clean; the right facial and anterior temporal arteries communicate a distinct pulsation to the fingers: having slept but little during the last night, directed him to take an anodyne of Tinct.Opii.gtt.

xxx. and to have the room made dark, and kept quiet, in order to procure him some sleep: let him have sago or panada as often as he inclines to take nourishment.

4 P. M.—Has slept the last two hours, and is still sleeping; respiration free and easy; nothing the least unnatural in his appearance.

10 P. M.—He has slept four hours, and is much refreshed; is free from pain, except a little in the elbow; pulse small and soft, beating 105 strokes in a minute; tongue clean; feels a little soreness in the wound when swallowing; has taken a considerable quantity of sago and panada; his appetite is good; temperature natural and uniform in both arms.

12 P. M.—Patient has slept the greater part of the time; is free from pain, and perfectly comfortable; skin moist and natural; pulse soft, small, and frequent.

Fourth day, 6 o'clock A. M.—Patient has passed a good night; says his right elbow gives him some uneasiness, but complains of nothing else; tongue is clean; skin moist and natural; can move the right arm with considerable ease; says he takes as much light nourishment as he has been accustomed to for some time past: no unfavourable symptom has as yet made its appearance.

11 A. M.—Symptoms continue much the same; tongue slightly furred; pulse comparatively small and soft, beats 105, and regular; respiration has been uniformly natural since the operation; suppuration has begun to appear through the dressings, and is attended with a little fœtor; let them be covered with a yest poultice: it is thought that a faint pulsation or undulation is at intervals felt in the radial artery of the right arm: the left external carotid continues its increased action.

6 P. M.—No change is observable in the patient's symptoms; he still continues comfortable, and complains of nothing.

Fifth day, 11½ o'clock A. M.—The wound was dressed to-day: on removing the poultice the dressings were soft and easily came away; the suppuration was considerable, and of a healthy appearance; it was found that the extremities of the two incisions were united as far as the sutures, each about one inch in extent; one suture at the angle of the wound was removed; the wound was dressed with dry lint, gently pressed into it; adhesive straps and a compress: his pulse beats 110, is fuller and stronger than yesterday.

6 P. M.—Patient is very comfortable, subject to no pain or unnatural sensation; pulse still 110, but softer.

Sixth day, 6 A. M.—Patient sleeps; respiration not attended with the least difficulty; skin moist and natural.

9 A. M.—He has rested well during the night, and is perfectly free from pain; pulse 110, and soft; skin moist; tongue clean: having had no alvine evacuation since the 13th, directed to take of sulphate of soda ℥j, in divided doses.

11 A. M.—The dressings were again removed, and the discharge seemed more considerable than at the former dressing; the sides of the wound are granulating, and appear perfectly healthy; on the ends of the muscles that were divided in the operation, there are small sloughs which are beginning to separate, leaving a healthy surface underneath; wound was dressed with lint spread with Ung. Res. Flav. and adhesive straps: pulsation is now perfectly distinct in the branches of the right external carotid artery: complains a little of the back part of his head, which he says is sore from lying; in other respects is comfortable.

6 P. M.—Has no pain, and is in every respect much as usual; tongue clean; skin natural; says he feels "no weaker than before the operation."

Seventh day, 6 A. M.—He has passed a comfortable night, and is free from pain or any uneasiness; pulse regular and soft, and beats 105 in a minute; skin moist, and of natural temperature.

11 A. M.—The wound was again dressed: suppuration considerable and healthy; some of the small sloughs came away, leaving a healthy and florid surface beneath: sprinkled the wound with powdered carbon, then filled it lightly with lint, and over this applied the yest poultice, which was secured with adhesive straps: temperature of the two arms is the same, cathartic having produced no effect, *Habeat enema purgans statim.*

9 P. M.—Symptoms have not varied materially: the enema has produced a copious evacuation: says he feels more comfortable, and desires to set up in bed, which was allowed, taking care to have him raised up very cautiously, in order to prevent any exertion being made with the right arm and shoulder.

Eighth day, 6 A. M.—Patient has rested well during the night; says he feels some pain on swallowing, and that when the attempt is made, it gives rise to a fit of coughing, which fatigues him; it also occasions some soreness in the wound: pulse still soft, and less frequent than yesterday: he takes a reasonable quantity of light food every day:—Directed a cetaceous mixture for his cough, and is permitted to set up for a short time, if he feels disposed.

11 A. M.—Pulsation of the radial artery of the right arm to be felt occasionally pretty distinct; cough has become more troublesome; pulse

100; skin natural and moist. The dressings were again removed, and the suppuration is more profuse, apparently healthy, though attended with considerable fœtor; appearance of the wound every way favourable; small portions of the sloughs are removed at each dressing, and the sides of the wound look perfectly healthy; the same dressings to be continued.

9 P. M.—Complains only of his cough, which troubles him frequently; can move his arm with much more facility, and has no pain in it; circulation as before, and the temperature uniform and natural. The wound was dressed this evening in consequence of the fœtor being unpleasant to the patient; continue the dressings.

Ninth day, 7 A. M.—Patient was found sitting up in bed, supported by a bed-chair, having passed a good night; is in good spirits, and expresses his gratitude for the relief afforded by the operation; says he can move the arm with greater ease, and it gives him no pain; pulse 105, regular and soft; skin natural; every symptom as favourable as could be wished.

10 A. M.—Pulse less frequent, regular and soft; temperature perfectly natural; wound has a more favourable appearance, discharges less in quantity, and it possesses less fœtor: dressed the wound as yesterday; tumour has diminished two

thirds, is soft, and less florid. The apex of the tumour is now below the clavicle.

6 P. M.—Patient still in every respect as comfortable as at the last report.

9 P. M.—Pulse 110, regular and soft: the dressings were removed this evening; the wound is much contracted in size, and is perfectly healthy, except a small slough which still remains in the deepest part of the wound; granulations are shooting up rapidly from the sides.—When preparing to renew the dressings, an unexpected and an unaccountable hemorrhage took place, which suddenly filled the cavity of the wound. The rapidity with which the blood flowed, and the size of the stream, gave rise to fearful apprehensions for the man's safety: dry lint was immediately placed in the wound, and as much pressure made as the patient could conveniently bear, which quickly stopped it. After continuing the pressure for a short time, the lint was removed, when no hemorrhage recurring, the usual dressings were repeated: the patient experienced no ill effects from the bleeding, nor did he seem to be much agitated. At 10 o'clock P. M. has no pain, nor has he as yet had any sleep.

Tenth day, 7 A. M.—Has passed a comfortable night, except that he has been frequently disturbed by his cough: tongue clean; skin moist;

pulse soft, and has much less strength than before.

11 A. M.—The dressings were again removed, and the wound made clean; its appearance is in every respect favourable; does not appear to have been the least injured by the hemorrhage: the dressings were renewed as before: he is directed to take half an ounce of the cold infusion of cinchona every hour, and to drink occasionally of ale when thirsty: has had an evacuation from his bowels to-day.

6 P. M.—Symptoms much as before; complains a little of his elbow, and a numbness in his hand, to relieve which he is directed to have the arm and hand rubbed well, and wrapped in wadding.

Eleventh day, 6 A. M.—Patient has rested well during the night; cough has not been so troublesome; says he has no pain, and feels perfectly comfortable; pulse better than yesterday; other symptoms as before.

11 A. M.—The wound is dressed daily at this hour; its appearance is still very favourable, although there is still some fœtor in the suppuration: the wound has contracted perhaps one third: the tumour is also considerably diminished, and softer than before; pulsation in the right temporal and radial arteries as before: the same dressings to be continued.

6 P. M.—No change in the patient's general symptoms; pulse soft, and rather more frequent; appetite is as good as usual.

9 P. M.—Appearances have not varied.

Twelfth day, 6 A. M.—Our patient was visited as usual this morning, but there is no evident change in any of his symptoms; says he now rests well at night.

11 A. M.—To-day, when the dressings were removed, that portion of the slough which occupied the bottom of the wound (apparently a portion of the sheath of the vessels) came away: every part of the wound now, where its surface can be seen, has a healthy look: the most depending part is obscured by a quantity of pus, which cannot be wholly removed by lint, and it is not thought safe to permit the patient to lie in such a position as will allow it to be discharged: with the slough came away the ligature which had been applied to an artery under the lower portion of the sterno-thyroid muscle; it was followed by no hemorrhage: the wound was now dressed with pledgets of lint, spread with Ung. Resinæ Flavæ and adhesive straps. He remains much as yesterday, has drank freely of ale; pulse rather stronger than yesterday.

Thirteenth day, 7 A. M.—No perceptible change in his symptoms; complains of no pain, and says he feels very comfortable; cough has given him

very little trouble for the last two days; he is evidently considerably weaker than before the operation, but is not sensible of it himself.

11 A. M.—The wound was again exposed; it is not as florid as yesterday, and there is a greater secretion of pus; the cavity of the wound was filled with dry lint only; the pus appears well formed, and has very little fœtor.

The same dressings were repeated in the evening; there is still a quantity of pus at the bottom of the wound, which rises and falls at each inspiration and expiration: it continues to contract above, leaving us uncertain of its extent beneath: during the last three days, the patient has set up for several hours each day.

9 P. M.—Pulse and skin perfectly natural; has had a natural evacuation from his bowels to-day; continues the infusion of bark as prescribed before.

Wound was again dressed, and is as healthy as usual; suppuration just sufficient to moisten the lint: the same dressings to be continued.

Fourteenth day, 7 A. M.—Patient has slept well during the night, and is as well as usual; complains of soreness of the ulcer which he has had for some time between his shoulders; it is improving in its appearance, and is directed to be dressed as usual with Ung. Resinæ Flavæ. The erysipelatous blush which surrounded it, is not

as florid as heretofore; it is beginning to granulate, and assume a healthy appearance: in other respects he is perfectly comfortable: he is now able to raise the right arm to his lips, which he has not done since the fourth day after the accident by which his shoulder was injured; says too that he is getting stronger, and that he walked across the floor this morning without any assistance.

11 A. M.—On removing the dressing, the granulations appear perfectly florid and healthy: the bottom of the wound is not visible, owing to the small quantity of matter which collects there, and from its depth cannot be easily removed, and perhaps not altogether safely; the position of the patient in bed must necessarily make the bottom of the wound the lowest: when he coughs or swallows, a small quantity of fluid pus at the bottom of the wound is seen to rise and fall; from the general appearance however of the wound, the man's feelings, and many other circumstances, it is not probable that there is any considerable quantity: the large ligature lying very loose in the wound, was taken hold of, merely however to see if it was separated; no force was used: pulsation of the right radial artery more distinct than heretofore: countenance of our patient is improving; says he feels more comfortable than before the operation: he

can now straighten his arm, and raise it to his mouth with facility: as yet he has not recovered his strength, but is improving daily; has been setting up all day: directed him when lying down, to assume a more recumbent posture; continue the sulphuric acid and infusion of cinchona, as before: complains of the ale being too strong; let it be diluted and made pleasant with sugar and nutmeg.

9 P. M.—The large ligature since the operation, has been confined upon the upper part of the sternum by a piece of adhesive plaister, to prevent any accident during the dressings. Upon dressing the wound this evening, the large ligature as it lay in the wound, appearing to be loose, was again taken hold of with the forceps, and found floating upon the pus, being completely separated from the artery below. The ligature was drawn so firmly upon the artery, that the noose was only large enough to admit the rounded end of a common probe. The wound looks healthy, and is contracting rapidly; it is now perhaps not more than one third of its original size. Suppuration is now only sufficient to moisten the lint through.

Fifteenth day, 12 o'clock.—The patient is comfortable in every respect; pulse and skin perfectly natural; is sitting up in bed, and occasionally amusing himself with a book; not the

least symptom about him indicating indisposition: wound is healthy, and continues to improve in appearance. The right arm at intervals gives him a sensation of numbness,—not more, however, than can be accounted for from the uniform position in which the arm rests, and no doubt a more languid circulation, as it is readily removed by a little friction and motion of the arm. His appetite improves, and he expresses a desire to walk about the room. The bark and sulphuric acid to be continued.

9 P. M.—In the afternoon he was removed down stairs, from the private room in which he was placed immediately after the operation, to the ward in which he formerly lay, and appeared highly gratified with the idea of again seeing his friends, whom he had left with very little hope of ever returning to. The wound, upon being dressed, did not appear to have undergone any perceptible change.

Sixteenth day, 11 A. M.—Our patient's strength is improving. To-day he made an effort, and with success, to visit his friends in Ward No. 7, where he lay previous to his being transferred to the surgical department, and returned, without having any support; pulse as strong as before the operation, and in every respect natural; appetite better than before the operation; cough a little troublesome, but less so than for several days previous; wound dressed with dry lint.

9 P. M.—Dressings removed; patient as before; suppuration small in quantity, and appears to be well-formed pus, and is not attended with the least fœtor.

Seventeenth day, 11 o'clock.—The ends of the divided muscles are nearly in contact, and the surfaces of the wound are rapidly granulating, and in every respect looks well: patient's health continues to improve; he walks about the room with perfect ease, and into several wards in the same story; the ability to move the arm increases; pulse and skin natural. The dressings were removed at 4 P. M., and also at 10 P. M.

Eighteenth day.—The patient's strength continues to improve; every symptom remains highly flattering; cough less troublesome. The dressings were again removed to-day three times.

Nineteenth day.—Continues the same as yesterday; wound dressed three times.

Twentieth day.—To-day he passed down two pair of stairs, and walked several times across the yard, and was highly delighted with his performance, and felt not the least inconvenience from it; sleeps uniformly well during the night, and takes more food during the day than he did previous to the operation; continues the infusion of cinchona and sulph. acid as before, and directed to use dry lint as the dressing.

Twenty-first day.—Dressed the wound three times again to-day; it is nearly closed at the bottom; the power of motion in the right arm continues to increase: he can now move it with as much facility as the left, though not to the same extent: his strength is daily improving, and the operation is considered by all to have been completely successful; size of the tumour continues the same, no diminution of it having been perceived for the last week; the most prominent part of the tumour is yet below the clavicle, that above rises to about the height of the clavicle, which gives a little convexity to the place between the clavicle and trapezius muscle.

Twenty-second day.—Continues to improve in every respect; dressings renewed as often as yesterday; owing to the weather he has not left his ward to-day; pulse full and strong; temperature of both arms the same.

Twenty-third day.—A few minutes before the hour of visiting to-day, a message was brought that the patient was bleeding from the wound. The dressings were immediately torn off, and dry lint crouded into the wound, and slight pressure applied for a few minutes, when the hemorrhage ceased. The patient lost at this time, perhaps, about 24 ounces of blood, and was very much prostrated. Pulsation ceased in the radial artery of the left arm, and the coun-

tenance, gasping, and convulsive throes of the patient, threatened immediate dissolution; all present apprehended the instant death of the patient. The first impression was, that the trunk of the arteria innominata had given way. The conjecture afterwards was, that the subclavian artery, from the diseased state of it, had not united by adhesion, and that the fluid blood from the tumour had regurgitated through its ulcerated coats. This appeared to be the most probable, both from the suddenness with which the blood ceased flowing, and the cause the patient assigned for the hemorrhage. He says that he felt weary of lying on his left side and back; that he had just turned on the right, which he had not done before since the operation, agreeable to my request. At the instant of turning over, something arrested his attention, which caused him to turn his head to the opposite side suddenly, and he felt the gush of blood from the wound.

He was directed some wine and water frequently, which soon revived the circulation. The wound was dressed with dry lint and a compress. Pulse as frequent as natural, but very small and soft: he appears very languid, and complains of a numbness and painful sensation in his hands; says also that his back aches. During the last twenty-four hours he has taken a pint and a half of Madeira wine: he also took occasionally some

egg and wine, which was immediately rejected from the stomach.

9 P. M.—Patient has lost his appetite, and appears considerably depressed; circulation very languid in the right arm; temperature of it is a little less than the left: directed a hot brick to be wrapped in flannel, and placed close to the arm. For a profuse perspiration which he has been in for the last three hours, he was ordered to be bathed with cold rum.

Twenty-fourth day, 6 A. M.—Slept the greater part of the night, and feels comfortable; is still languid, and has no disposition to eat any thing; says he feels sick, and once last evening vomited after drinking some wine and water.

Wound looks exceedingly pale, and the discharge is thin and fœtid, for which the carbon and yest dressings were applied. He has vomited several times to-day, and has some considerable difficulty in swallowing, and complains of a soreness in the wound upon pressure.

9 P. M.—Dressings removed; wound very pale; right arm of the natural temperature; feels occasionally a little numbness in the hand; has taken very little nourishment during the day; pulse natural as to frequency, but small and feeble; a few minutes after dressing the wound, information was brought that hemorrhage had

ensued, and before it could be commanded, he probably lost four ounces of blood. For his restlessness and pain in the bones he was ordered two grains of opium.

Twenty-fifth day.—Has rested well during the night, and is perhaps a little better this morning. The repeated hemorrhages have debilitated him exceedingly, and from the irritable state of the stomach he can take only a very little nourishment. In the morning he was directed the effervescing draught to be repeated every two hours; this allayed the irritability of his stomach, and enabled him to take a little breakfast.

His countenance has altered since the first bleeding surprisingly, his eyes are now heavy, and for the most part fixed; his cheeks are sunken, and an universal palor has spread itself over his countenance; and from every appearance, a short time will terminate his existence. He has not vomited since early in the morning; is advised to take a little soup, and to drink freely of wine and water; dressings were renewed at 3 o'clock P. M. shortly after which the patient again bled, but not to exceed, however, an ounce. He was dressed with dry lint as usual.

11 P. M.—Patient has not as yet had any sound sleep, is restless and apparently distressed, although he says he feels no pain; breathing

is attended with some difficulty; his hands and legs are continually in motion; pulse small and feeble.

Twenty-sixth day, 6 A. M.—Patient has not rested well; is occasionally falling into little slumbers, but is awaked by the least motion: Pulse small and feeble; respiration somewhat laboured; appears to be sinking; seems disinclined to take any thing; legs and arms constantly in motion.

11 A. M.—More feeble than before; has been forced to take a little chocolate; is evidently sinking; wound was dressed, but there was no secretion of pus in it; countenance of the patient foretells his approaching dissolution.

6 P. M.—Is extremely low; respiration very much laboured; is not able to articulate: for the last three hours there has not been such continued throwing of the legs and arms about the bed: he lays in a state of insensibility; *temperature of the two arms the same to the last.*—My pupil, Abraham I. Duryee, the House Surgeon, (to whom I am indebted for the correct reports, and the most unwearied attention to this case, and whose ingenious application of means for the recovery of many of my patients, will long be held by them in grateful remembrance,) having for a few minutes left the patient, he was sent for immediately, as there was

another bleeding from the wound, by which he lost probably eight ounces of blood: during the whole time he did not manifest the least appearance of consciousness, nor was the least motion perceptible, except that necessary for respiration and circulation: the hemorrhage was stopped with lint, after removing the former dressings; respiration is now performed with the utmost difficulty, and the patient appears as if every respiration would be the last: he expired at half past six in the afternoon: the temperature of the right arm after death, appeared by the touch to be the same as the left; it was as natural and uniform as other parts of the body.

EXAMINATION OF THE BODY.

About eighteen hours after death, I opened his body; there was considerable emaciation, and the surface of the wound was of a dark brown colour, and fœtid; the wound was perhaps about one third of its original size; it had been enlarged by the pressure of lint into it, and other means to arrest from time to time the hemorrhage: the ulcer between his shoulders was ill-conditioned.

For the purpose of examining the condition of the aorta, where the arteria innominata is given off, as also the origin of the latter vessel, as well as the state of the pleura at the part about which the ligature had been applied around the artery, the chest was opened in the following manner: after removing the integuments and muscles from the fore part of the chest, the sternum was carefully sawed through about an inch from its upper extremity, and raised by sawing through the ribs below the junction of the cartilages; this removed so much of the front part of the chest as to facilitate and expose fully to view the subsequent steps of the dissection; by thus leaving the clavicles attached, every part connected with the ulcer and great vessels could be seen and examined in sitû.

The arch of the aorta and origin of the innominata being fairly exposed, not a vestige of inflammation or its consequences could be discovered, either upon them, the lungs, or the pleura, at any part. An incision was next made longitudinally into the aorta opposite the origin of the innominata, and upon introducing a probe cautiously up the latter vessel, it was seen to pass into the cavity of the ulcer; the innominata was then laid open with a pair of scissors into the ulcer; the internal coat of this vessel was smooth and natural about its origin, but for half

an inch below where the ligature had cut through the artery, it showed appearances of inflammation, and there was a coagulum adhering with considerable firmness to one of its sides; showing that nature had made an effort to plug up the extremity of so large a vessel, after the adhesion, which no doubt had been effected by the ligature, was swept away by the destructive process of ulceration. The upper extremity of this vessel was considerably diminished in its diameter by the thickened state of its coats, occasioned by the surrounding inflammation. The innominata about half an inch from the aorta, and a little to the left side, gave off an anomalous artery large enough to admit a small size crow-quill.

The ulcer at the bottom was more than twice the size of the wound in the neck; it extended laterally towards the trachea and under the clavicle towards the tumour. The tripod of great vessels, consisting of the innominata, subclavian, and carotid arteries, to the extent of nearly an inch, was dissolved and carried away by the ulceration. The extremities of the two latter vessels were found also to open into the cavity of the ulcer. The upper surface of the pleura was very much thickened by the deposit of newly organized matter, for the safety and protection of the cavity of the thorax. Indeed, instead of

having increased the danger of penetrating this membrane, the adhesive inflammation which preceded the ulcerative, seemed, by the consolidation of cellular membrane, and the addition of new substance, to have more securely and effectually shielded it from danger.

The internal surface of the carotid artery was lined with a coagulum of blood, more than twice the thickness of its coats, and extending above the division into internal and external, so as almost to give them a solid appearance, insomuch that a probe could barely be introduced. The subclavian artery, internally and externally to the disease, was pervious. The brachial and other arteries of the right arm were of their common diameter, and in every respect natural. The external thoracic or mammary arteries, as they went off from the subclavian, were larger than natural: the right internal mammary was pervious, and of the usual appearance. Upon opening into the tumour, which now gave (from its small size) no deformity to the shoulder, the clavicle was involved in it, and found carious, and entirely disunited about the middle. A number of lymphatic glands under the clavicles, and particularly the left, were considerably enlarged, and, when cut into, very soft, and evidently in a state of scrophulous suppuration. No other morbid appearances were observed.

Several very important facts are established by this operation—facts which no surgical operation has ever before confirmed. It proves very conclusively, that the heart, the brain, and the right arm, were not the least injured by it, in any of their functions. To tie so large a vessel, so near the heart, might very reasonably be expected to occasion some immediate derangement in the actions of that organ: but it was neither increased or diminished in its contractions, nor did it give rise to the least visible change in his respiration. All this could not have been anticipated. I apprehend there are no ingenuous surgeons, who would not have expected quite a contrary result. For my own part, I must confess that this was to me an anxious moment, when I drew the ligature upon this artery. Indeed, so apprehensive was I that some serious, if not almost immediately fatal consequences, would follow, from arresting so large a proportion of the whole mass of blood suddenly, that I drew the ligature very little at first. But when no change took place in the actions of the heart, or respiration, I felt a confidence in completely intercepting the whole current of blood through this great vessel.

The brain in no operation has been deprived of so large a quantity of blood as in this, and yet it suffered no inconvenience: from the effect of experiments however upon animals, I entertained no fear as to the consequences of my operation upon this organ.

The right arm, as the reports of the case from day to day will show, was in no want of a sufficient supply of blood for the purposes of its economy. That circulation went on to a degree adequate to its wants, the natural warmth and function of the skin fully prove; and although at no time could all be satisfied that a pulsation was perceptible in the radial artery, yet many at times were of the opinion, that an occasional undulatory motion was very evident: every one was confident of the distended and elastic feel of this artery, and could plainly see, from pressing on the distended veins upon the back of the hand, that a free circulation of blood was going on: but independent of these evidences, the natural warmth and free perspiration would alone be sufficient to establish the fact.

The route of circulation to the right arm was somewhat different, at first, from what took place after the ulceration had extended. The inosculation of the epigastric and internal mammary must have thrown a considerable retrograde current of blood through the latter vessel into the sub-

clavian directly, and which in all probability passed on into the arm: after the ulceration had extended, this communication was cut off by the destruction of the subclavian to some distance. It was now that the principal supply of blood to the arm must have been derived from the free communication of the intercostals with the thoracic arteries. From the large size of these, as found in the dissection, I apprehend they must have afforded the principal channels through which the blood was conveyed to the arm after the operation: the anastomoses of the infra-scapular and other arteries of the axilla, more or less with small branches of the intercostals, as also the occipital, with small ascending branches from the subclavian, may have given some trifling assistance.

The ulceration which went on so insidiously at the bottom of the wound, was the sole cause of the death of my patient. While the upper part of the wound put on a favourable appearance, and seemed healing, mischief was extending below. The separation of the ligature on the fourteenth day, spontaneously, without being followed by any hemorrhage for a number of days, and not until ulceration had extended, conclusively proves to my mind, that all the purposes of the ligature were completely answered—that adhesion was fully effected. Had it not been for the

ulcerative inflammation, no doubt will be entertained, I think, by surgeons, but that my patient would have recovered. From occupation, his constitution was indeed very old, and with an ill-conditioned habit, every thing favoured the process of ulceration. The position of the wound may be said by some to favour this process, but in a sound healthy habit it would only retard the wound in its recovery, but would never promote ulceration.

The practicability and propriety of the operation appear to me to be satisfactorily established by this case: and although I feel a regret, that none know who have not performed surgical operations, in the fatal termination of it, and especially after the high and just expectations of recovery which it exhibited; yet I am happy in the reflection, as it is the only time it has ever been performed, that it is the bearer of a message to Surgery, containing new and important results.

A CASE

OF

INJURY BY LIGHTNING,

SUCCESSFULLY TREATED BY COPIOUS VENESECTION,

BY ALEXANDER H. STEVENS, M.D.

I. STONES was brought into the New-York Hospital, on the 29th April, 1818, having been struck with lightning a week previous, on board the ship Sea Fox, Capt. Fanning, off New-London. It appeared that his left hand grasped a rope, which he was drawing down; his left foot was probably at the same moment raised from the deck of the vessel. The electric fluid, in descending the rope, had passed diagonally across his body, from the left hand to the right foot, injuring in its passage the intermediate viscera, and a considerable breadth of external integuments. A reflected operation had also involved the left side of the neck and head. The whole surface of the affected skin was blistered, as if with hot water, and numerous points were scattered over it, resembling punctures with a fork or nail. The poor fellow exhibited no signs of life for several hours after the stroke. Nothing had been done

for him before he was brought to the Hospital. His skin was heated and dry, his breathing laborious, his pulse strong and frequent, his tongue white and dry, and his pupils dilated. Under these circumstances, I directed the vesicated parts to be covered with the ordinary lime-water liniment. Venesection and the antiphlogistic treatment, together with the compound powder Ipecac. and antimonials, were accordingly directed. Notwithstanding the typhoid heat of the skin, dilated pupil, occasional delirium, and great nervous agitation, the amount of blood drawn within ten days was about one hundred and twenty ounces. It constantly exhibited the buffy coat. The recovery of the patient, a long time doubtful, and protracted by great nervous debility, was at length completed; and at the expiration of seven weeks, except a degree of weakness in the right knee, his health was perfectly re-established.

REMARKS ON CATARACT

AND ON THE

POSITION OF THE PATIENT

IN OPERATIONS ON THE EYE;

WITH

A CASE SUCCESSFULLY TREATED,

BY ALEXANDER STEVENS, M.D.

In no part of Surgery has the ingenuity of the profession been more industriously employed than in operations upon the eye; more especially such as are designed for the removal from the axis of vision of the opaque chrystalline or its capsule. The operation of depression, extraction, and in our day, the absorbent practice of Saunders, and the mixed operation of Adams, have each in their turn been adopted and rejected. A desire of exhibiting superior dexterity, and still more the love of novelty, have doubtless contributed in some degree to this variety of opinion and in practice, yet probably it may be justly said that an uniform adherence to any one of these methods can only result from an empirical preference, or a want of manual dexterity. To a sunken eye-ball, an adherent iris.

or a small anterior chamber, or to children, extraction is seldom applicable. A fluid or gelatinous cataract does not admit of depression, nor is Saunders' operation suited to adults. Admirably adapted as it is to children, I have long since been taught by repeated disappointments to limit its employment to young patients. The inconvenience of it is not that it does harm, or leaves the eye in a worse state than before the performance, but that at the end of four, six, and even eight months, and a repetition of the operation as many times, the patient abandons his surgeon in disappointment. I speak with confidence, not only from my own experience, but from a knowledge of the practice in the London Infirmary, and I appeal to the experience of other surgeons for a confirmation of this decision. It would not comport with the objects of this Register further to extend these remarks, introductory to a case whose only object is to recommend a recumbent position for patients, during an operation on the right eye, as far more convenient even to those who possess the happy faculty of dexterously using the left hand.

Catharine Williams, aged 21 years, was admitted into the New-York Hospital on the 3d day of September, with cataracts in both eyes of three or four weeks standing. The chrystalline lenses

were perfectly opaque, and vision of course entirely destroyed. No adhesion of the iris had taken place, and every circumstance was favourable. After a few days of anti-phlogistic preparation, I depressed the lens of the left eye, the patient sitting in the usual posture; no bad symptoms followed, and vision was perfectly restored.

At the expiration of a week from the first operation, the right eye was operated upon, the patient lying on her back, and the operator sitting on a high chair behind her. Adhesions having formed between the iris and capsule of the lens, since the first operation, portions of the latter became detached, so that vision was partially obscured, after depression of the principal part had been effected. It is improving, however, and I feel perfectly satisfied, that the convenience of operating on the right eye from behind, is fully equal to that of operating on the left, in front of the patient.

REMARKS

ON

LIGATURES FOR ARTERIES,

BY ALEXANDER H. STEVENS, M.D.

THOSE who reflect upon the methods formerly practised to prevent hemorrhage from large divided arteries, and compare them with the effects of the ligatures, will be ready to admit that no part of Surgery has undergone greater improvements. There is, however, a "zeal beyond knowledge," which distinguishes the efforts of surgeons of the present day, more especially in the pathology of the blood vessels. From this reproach, however, the French are exempt, and it is worthy of remark that the country which gave birth to Paré and the ligature, is far behind her neighbours in a knowledge of the best mode of employing it. If the *ligatures d'attente* be less appalling than the boiling oil, or the red hot knife, it partakes of their dangers and inefficiency.

It is not the object of the present paper, nor would it comport with the design of this journal, to give a history of the fluctuating practice of surgeons in relation to diseased or divided arteries; nor is it in the power of the writer to offer any

substantial improvement in the mode of securing them. He nevertheless anticipates the thanks of some members of the profession, whose opinions may have been disturbed by the undulations of distant experimentalists, if he can restore to their minds the conviction that the common practice is still the best, and occlude a specious innovation, in the guise of a real improvement.

The broad flat ligature was given up as too large, and incapable of cutting the internal coat.

The plan of securing an open artery by passing a crooked needle in the fleshy parts around the vessel, was justly abandoned, because it was found to be unnecessarily painful and uncertain—painful from the irritation of muscular fibres, and the occasional including of a nerve—uncertain, because it would often become loose, by reason of the ulceration and absorption of the muscle and cellular tissue, before adhesion had taken place. The objection, that it did not divide the internal coat, was rather specious than solid.

More recently, peculiar advantages were attributed to a ligature of two waxed threads laid smoothly together; to this succeeded the round ligature, generally a piece of bobbin: after this, a single flaxen thread was employed; silk was next used; in each case the artery being drawn out and freed from the adjacent parts. It was

undoubtedly an advantage to divide one of the threads close to the knot, but this would not satisfy the zeal of reformers; they cut off *both* threads close to the artery. If in an extensive surface, which must necessarily heal by granulation, all this was well—the improvement was real, though inconsiderable; the irritation of the threads was in a great measure avoided. But the practice was applied in amputation, and the lips of stumps were accurately brought in opposition, the ligatures remaining of course inclosed; a thread was placed around the femoral artery, in a case of aneurism, and the lips of the wound closed upon it. The consequence was such as might have been anticipated. The wounds healed up externally, and the ligatures, detached from the vessels by ulceration, formed abscesses, and gradually made their way to the surface, at the expiration of periods from one to six months, or more, in duration. This would not do: something else must be devised, or the old practice must be reverted to. The idea of animal ligatures, which would dissolve and give no trouble, was hit upon—by whom, is still a matter of doubt; for there are claimants on both sides the Atlantic, and on both sides of the British Channel. Hair, silk, leather, and catgut, have each been employed; still abscesses form, and the stump continues tender for an unusual length of

time. This arises from the *knots* remaining undissolved, after the ligatures have separated from the vessels. To remedy this inconvenience, we are informed that a practice is adopted, of laying a small strip of linen on the stump, from the liligatures to the lower angle of the wound, in order to keep open a passage for their exit! The results of fifteen or twenty cases of amputation, and operations for aneurism, in which these various projects have been tried, convince me that no plan has hitherto been devised, which ought to supersede the use of a small and strong ligature, no matter of what materials composed, applied to the artery alone, as near as possible to its vascular connexions.

In operations for aneurism, it is of little consequence whether one ligature be applied, or two, and the vessel divided between them. Perhaps we may soon hear of an operation for aneurism without tying the artery; but only surrounding it loosely with a ligature, the irritation of which would, it is believed, cause an effusion of lymph about and within the vessel, and gradually obstruct the transmission of blood through it.

A CASE

OF

COMPOUND FRACTURE

OF

THE OS FEMORIS,

WHICH TERMINATED FAVOURABLY.

BY VALENTINE MOTT, M.D.

This is the third case of compound fracture of the thigh bone, which we have had an opportunity of seeing; and as the two first ended fatally in a very short time, we thought a report of the following case, which eventuated in recovery, with the steps of the treatment, might be favourably received by our readers. Compound fractures of this bone will always have a peculiar danger to accompany them, from the great laceration of soft parts, which is necessary to make this kind of case. In both the cases before referred to, death was occasioned by a remarkable degree of nervous irritation, although the patients were not advanced in life, or by any means of slender and irritable habits. In one of them

the femoral artery was found lacerated, and the the thigh extensively injected with blood, which, added to the hot season at which it occurred, gave little chance for a favourable issue. The man died within the week after the accident, and before sphacelation had taken place upon the foot. In consequence of the enormous distension of the thigh from blood, this change in the limb would have speedily succeeded, from the want of circulation through the inosculating channels.

In the other case, death took place before inflammation rose to any considerable height. Indeed, both of these patients appeared to lose their lives, more from the irritation of the whole system, than any particular excitement either in the part or in the blood vessels generally. Their limbs were placed in the half bent position, as recommended by Pott, and practised generally by English surgeons.

In the present case, the straight or extended plan was adopted, occasionally making extension with the excellent splint of Baron Boyer, with the addition of the leather foot piece or gaiter, which we have introduced, and would recommend as by far the easiest plan of making the extension.

The case, as reported by the house-surgeon, is as follows:—

CASE OF WILLIAM MOODY.

William Moody, a seaman, 35 years of age, born in Salem, state of Massachusetts, was admitted into the New-York hospital on the 21st of April, 1818, for a fracture of his thigh.

The accident happened on the 14th of the same month, at sea, in the ship Belle Sauvage, while on her way from Boston to New-York. During a heavy gale, the vessel "shipp'd a sea," and the unfortunate sufferer was thrown from the quarter deck to the waist, against, and partly through the bulwark. The booby hatch was at the same time carried with him, and as the vessel recovered herself, it fell immediately across his thigh, and fractured it.

The fracture was at first of the simple kind, and the soft parts were not materially injured. The circumstance which renders the case interesting, was the result of a second accident. His shipmates had carried him to his birth, and sat him up on the side of it, and in their hasty endeavours to get him in, his leg fell, and the upper shaft of the bone was made to protrude through the integuments.

Nothing further was done, until the gale, which continued several hours, had subsided, and fortunate it had been for the patient had his officious

shipmates suffered him to remain as in their hurry they had left him: but anxious to do every thing in their power to assist him, and ignorant of what ought to have been done, their ill directed efforts proved highly injurious.

They first bound the thigh with a roller, passed twelve times around it, drawn very tight, immediately over the fractured part; upon this were placed pieces of hoop about five inches in length; these were secured by a small cord drawn as tight as the strength of two men could conveniently make it.

The patient lay with his thigh thus confined for thirty six hours. The pain, when this dressing was first applied, was severe, but he bore it with fortitude, believing, with his shipmates, that it was absolutely necessary. At length, however, the swelling and inflammation occasioned by the dressing rendered the pain insupportable—he became delirious, and in that state unconsciously removed them. They were not re-applied until two days afterwards. Strips of thick leather were then substituted for the hoops formerly used, and the cord was not drawn as tight as before. In this state he remained until brought into the hospital.

April 21*st.*—The whole limb was at this time, as might be expected, swelled enormously; its size was nearly twice that of its fellow. The

upper portion was in a state of the most active inflammation, the lower edematous.

The external opening was situated a little below the middle of the thigh, at the upper edge of the sartorious muscle, and was just large enough to admit the finger. The limb was about two inches shorter than the other, and exceedingly painful upon the least motion. The bone was found simply fractured two or three inches below the great trochanter.

It was placed as nearly in its natural position as the state in which it was would permit, and means were taken to reduce the local inflammation and general excitement, as speedily as possible.

May 4th.—The swelling was somewhat abated, and the inflammation less active, and the patient was comparatively free from pain, and in every respect more comfortable. There was a small discharge of a well-formed pus from the wound.

The thigh had been kept constantly wet with a solution of acetas plumbi in vinegar, spirits, and water. The many tailed bandage was now applied, and continued for three weeks with advantage. It could not, however, be applied tight enough to keep the bones in their proper situation.

May 25th.—It was deemed expedient to make some extension by means of Boyer's splint, with the addition of a leather gaiter, laced in front, and fastened by straps at the bottom to the foot piece.

June 1st.—The patient complained of an unusual degree of pain in the thigh; and in consequence of this, the splint was removed, and the bandage thrown off. Upon examination, the thigh was found considerably enlarged, and much inflamed—it seemed probable that an abscess was forming in the outer side, and most prominent part of the thigh. In a few days it became evident, and was opened: it discharged about half a pint of well-formed pus.

The abscess proved to be very large. It extended downward, within two inches of the knee joint, and doubtless commenced with the wound made by the fractured bone.

The relief afforded was great and immediate, but of short duration. In about a week, the lower part of the thigh and knee swelled, and became exceedingly painful. There was evidently matter within, but there was no soft or prominent point offering itself—an incision, however, was made. The discharge was small in quantity, and did not afford the expected relief: the swelling still increased, and the pain became almost insupportable. In a short time, a fluctuat-

ing point was perceived about the same distance above the knee, on the inner side of the thigh; an incision was made into it, and on the 12th June, in the course of 12 hours, there was more than a pint of matter discharged, and it continued to discharge about the same quantity daily.

The inflammation and pain now began to abate, and the thigh to assume a more favourable appearance; but the discharge from the four openings was immense. No bandage had been applied to the thigh since the splint was removed. The leg was occasionally confined in a piece of strong muslin laced in front, extending from the foot to the knee, removed when painful.

June 18*th*.—A bandage similar to the last mentioned, was applied extending from the ankle to the groin, having holes made in it, corresponding to the openings in the thigh.

July 12*th*.—Boyer's splint was again used.—The outer opening still continued to discharge a large quantity of matter. As much extension was made on the limb as the patient could conveniently bear; but it proved insufficient to reduce the ends of the fractured bone.

July 29*th*—The lower shaft of the bone which projected backward, and could easily be felt through the integuments, produced an ulceration in them, and an opening into the general cavity. The four other openings ceased to discharge any matter, and soon closed.

The limb continued improving in its appearance, though little benefit was derived from the splint.

August 1*st*—'Twas perceived that the bones had united: there was now no discharge of pus, but of a thin watery fluid, of a mild nature, and small in quantity. The splint was still continued as a guard to the limb, the bandage occasionally tightened as the swelling abated.

September 12*th*.—The splint was removed, and the patient allowed to get up, and with assistance placed in a chair for some minutes.

September 20*th*.—He now sits up the greater part of the day; narrow splints are placed on the thigh, and secured by a roller, to prevent any accident that might occur, but the bone appears to be firmly united, and he is able to bear considerable weight on the limb. The leg is shortened about four inches.

His knee, though somewhat stiff after getting out of bed, is beginning to allow of considerable flexion.

During the profuse discharge of matter, his health was supported by the most tonic medicines and nutritious diet.

To a constitution almost unsubduable, is our patient greatly indebted for his recovery. When the first tumefaction from inflammation subsided,

the bone was also found fractured about three inches below the great trochanter, which greatly added to the danger and interest of the case. When the suppuration came on, it extended from the compoundly fractured part of the bone, to the simple one above, and in fact throughout the whole thigh; insomuch that fluctuation could be plainly felt from the anterior superior spinous process of the ilium, along the whole course of the crural arch, and extending to the knee joint.

A little extension was made after the first tumefaction from inflammation went off, but it was at no time considerable. The principal object of the long splint was to give support and steadiness to the limb, and occasionally, as the state of it would permit, to apply a little extension. For some weeks, however, in consequence of the several openings which were made to evacuate the matter, it was from necessity laid aside. The foot was now supported in a perpendicular position by a contrivance in the foot-board of the bed. During this time, the whole limb was equally and firmly supported by a firm piece of strong linen or muslin, laced in front, and extending from the groin to the ankle—having openings to correspond with those in the thigh. This form of bandage is the excellent invention of the House Surgeon.

A CASE

OF

STRICTURE IN THE URETHRA,

CURED BY AN OPERATION,

BY ALEXANDER STEVENS, M.D.

In the ordinary mode of applying an armed bougie to the urethra, the edges only of the stricture are subjected to its operation. Hence it happens, that a very long course of cauterization becomes necessary. In a gentleman who had suffered from stricture many years, and who had received very partial relief in several parts of Europe, I found a stricture nearly an inch long, about four and a half inches from the meatus urinarius. Having cut off the end of a small gum elastic catheter, and adapted to it a piece of catgut exceeding it an inch in length, I dipped the end of the latter in a strong solution of the muriates of ammonia and mercury. When the end of the catheter had reached the stricture, the catgut was passed onward, and retained in the stricture about 20 seconds. The patient complained of severe pain, and as the instrument was withdrawn, he became strongly

convulsed for several minutes. Tinct. Opii. was freely administered, and on the next day he had quite recovered, and now for the first time during a period of many years, he passed his urine without straining, and in a full stream; nor had he, at the end of two years, had any return of his former complaints.

Strictures in the urethra are occasionally met with of so firm a texture, that the process of destroying them by caustic does not succeed. It would appear that in many of these cases the urethra acquires the hardness of cartilage. If in addition to this change of structure the stricture be of great length and very narrow, the causes which will prevent success from the use of caustic are obvious.

In the following case, this practice and all the common modes of treatment having failed, a different mode was pursued with entire success.

Albert Vanderhoof was admitted into the New-York Hospital on the 10th day of Sept. 1817, on account of a very troublesome stricture, which had existed for two years. The bladder remained constantly distended, and he was under the necessity of carrying a vessel to receive the urine which was constantly dribbling from the urethra. He had occasionally paroxysms of very severe straining, which were palliated by the warm bath, opiates, and the Tinct. Mur. Ferri.

as recommended by Mr. Cline. The commencement of the stricture was about two and a half inches from the end of the glans, and not less than an inch in extent, very crooked, impenetrable to the finest probe, and almost as hard as bone. The penis could not be bent in the situation of it. Several months' assiduous use of the nitrate of silver, kali purum and the liquid caustic, an application of poultices, and Ung. Hydrarg. externally, produced little amendment. The urine continued to dribble away, and occasional retention occurred.

Under these circumstances it was proposed to lay open the urethra, by cutting open the stricture, remove the cartilaginous portions of the urethra, and keep the passage open by a piece of bougie, and if necessary, by caustic.

The urethra was accordingly cut into. But the lower orifice could not be found*, and after a tedious search the patient was removed to his ward. In a few days the wound healed, but the patient derived no benefit from the operation.

* Some of the assistants were of opinion that the urethra was not fairly laid open. Indeed, in the confused state of the parts, it was difficult for any one but the operator to be convinced of the fact which was afterwards fully proved by the escape of urine from the opening. It was afterwards discovered that another stricture existed further on. On this account the lower opening was not brought to light by the flow of urine.

My colleagues and myself however were fully satisfied that it is best to avoid when it is possible, cutting into a stricture opposite the scrotum*.

The patient willingly submitted to be brought into the theatre a second time, in consequence of my assuring him that another operation would afford him at least temporary relief. I accordingly placed him as in the operation of lithotomy, and made my first incision obliquely across the perinæum, and dissected down to the bulb of the urethra: the patient was now directed to make an effort to empty his bladder, by which the urethra was distended. I punctured it, and introduced into the bladder a female gum elastic catheter, with a stopper fitted to it. The patient went to bed comfortable.

2*d day*.—The urine is retained an hour at a time, the bladder having lost its tone in consequence of its repeated distension.

10*th day*.—The urine is retained four hours: The man's health, which had been much impaired, is greatly improved. I passed an armed bougie from the upper opening to a stricture about four inches and a half from the glands.

20*th day*.—The caustic has been applied three times, and a bougie can now be passed to the

* This remark is evidently not applicable to the last of the operations performed upon Albert.

lower part of the principal stricture, which I directed to be treated with the armed bougie.

30*th day*.—The armed bougie makes very slow progress; but the hardness of the stricture has greatly subsided. The patient having become impatient at the slowness of its operation, I passed a probe into the meatus urinarius, down to the stricture. The space between the end of the probe and that of a bougie, passed upward, is more than three quarters of an inch. I laid open the urethra between them, cut away hardened portions of it, passed a full sized bougie into the meatus, past the strictures, and through the opening in perinæo.

32*d day*.—The female catheter was withdrawn, and the end of the bougie bent and passed on into the bladder: the patient is directed to wear it constantly.

41*st day*.—The openings in the urethra are healing: the catheter was withdrawn, cleaned, and replaced.

50*th day*.—The upper opening has closed.

55*th day*.—The lower opening has almost closed. A probe was dipped in a caustic solution, and introduced into it.

60*th day*.—The lower opening has healed. The bougie was now withdrawn. The urine passes in a full stream and without straining.

70*th day*.—Discharged, cured.

REMARKS

ON THE

SUPPOSED EFFECTS

OF

DRINKING COLD WATER;

ILLUSTRATED BY

CASES WHICH OCCURRED DURING THE HOT WEATHER OF THE SUMMER OF 1818;

SUBMITTED TO THE MEDICAL SOCIETY OF THE COUNTY OF NEW-YORK.

BY JOHN WATTS, Jr. M.D.

During the last two days of June, and the first of July, 1818, the weather was excessively hot and dry; no rain had fallen in a long time, and the thermometer in the shade was as high as 92 or 93 degrees. In the course of those three days, thirteen persons were admitted into the New-York Hospital with apoplexy; all of them labouring under more or less strongly marked symptoms of that disease, said to have been occasioned by imprudently drinking large quantities of cold water. They were generally common labourers, foreigners, who had very recently arrived in this country, some of them having landed only a few days before at Amboy. It was stated that they had been at work, exposed to

the sun all the morning, and that they had drank more than their usual quantity of ardent spirits; that after dinner they returned to their work, and with the additional excitement produced by eating, felt an increasing thirst, which obliged them to go frequently to the pumps, and to drink very largely of cold water.

The symptoms which occurred (and in some of the patients there was an opportunity of noticing them from the commencement) were a sudden pain in the stomach, followed by slight vomiting, giddiness of the head, and fainting; shortly after deep sighing, and difficult breathing; a rattling of the throat, with a secretion of a thick glairy mucus; the face was suffused with blood, and of a livid colour; the pulse was strong and full, the skin very hot and dry. In a short time after, coma supervened, and in some instances complete apoplexy, marked by stertorous breathing and loss of all voluntary motion; in most of them tympanites occurred to a very great degree.

The mode of treatment that seemed best adapted to this form of disease, was very large and repeated bleedings, stimulating enemata, and rubbing the whole surface of the body with aqua ammoniæ. This last application had a decidedly good effect in lessening the heat of the body and the comatose state of the patient;—sometimes rousing him from an apparently fatal torpor.

When the apoplectic symptoms had not yet supervened, laudanum, æther, and other stimulants appeared to be beneficial, but their good effects were only momentary, for in a very short time afterwards, apoplectic symptoms occurred. Several of the patients were bled to sixty, and one of them to eighty ounces, in the space of two hours. The recovery of this last patient was more complete and rapid than that of any of the others.

As soon as blood was copiously withdrawn, the stertorous breathing ceased, and the senses were restored: immediately afterwards a drink of cold water was asked for by the patient, and when granted, was oftentimes instantly succeeded by vomiting; and the effect of it was highly beneficial, relieving the distended state of the stomach, and producing a general salutary impression. In some of the patients, symptoms of apoplexy returned after the second bleeding, and in two cases it was necessary to repeat the bleeding four times before the patients were completely relieved. On the next day, the breathing was remarked to be laborious, and in one instance it was with great difficulty that the patient could speak more than a few words at a time: he complained also of great pain and soreness of the right side; which, however, were soon relieved by the application of a blister to

the affected part. Two of the thirteen patients died; one of whom, on examination, presented the following appearances:—The vessels of the brain extremely turgid; about five ounces of extravasated blood on the surface of the dura mater; some at the base of the brain, and the ventricles completely filled with serum. The lungs engorged, and of an appearance similar to the lungs of persons who have died of peripneumony; the heart red, and the pericardium much distended with a bloody looking fluid; the stomach perfectly natural and quite empty.

In all these cases, the action of the heart and arteries was greatly increased: in some of them it was excessively great, and the heart continued to palpitate very violently even after the circulation at the wrist had been much reduced by copious bleeding. The heat of the body was likewise remarkably great, and in some instances continued for a long time after bleeding.

In addition to the foregoing cases, there were numerous other instances, in different parts of the city, of very sudden and violent derangement of health, which came under the observation of several physicians, during those extreme hot days of June and July. From all the information that could be collected, it appears that the symptoms were generally such as were noticed in the per-

sons of those who were received into the hospital; and that these symptoms were commonly ascribed to the drinking of cold water. It is to be regretted that the number of deaths have not been ascertained, the several modes of treatment that may have been adopted, and the comparative success of the different means that have been employed. It may even be feared that some persons have fallen victims to the injudicious and extravagant administration of laudanum; since it was so frequently recommended, and officially too, by the Board of Health, as the surest antidote to the dreadful consequences of imprudently drinking cold water; a recommendation, which, in all probability, sanctioned the demoralizing effects of spirituous liquors, and gave rise to a number of those cases of disease which were charged to the use of cold water. How, else, shall we explain the success of the treatment that restored eleven out of thirteen instances of this disease; a large proportion of which were protracted for an hour or more, previous to their reception into the hospital, and without any symptoms of cramp, spasm, or convulsion, or any indication of languid circulation and defective vitality, from the operation of a sedative agent on the stomach? No instance has been communicated of an absolutely sudden death from this cause; nor have we understood that any reco-

very has been ascribed to the use of laudanum alone, in cases at all similar to those received in the hospital. On the contrary, statements of numerous cases have been furnished, that were cured by the most copious bleeding.

The assemblage of symptoms that have been enumerated, suggests a very interesting pathological question; for, they are widely different from those which we find recorded by medical writers, as incident to the drinking of cold water in a highly heated state of the body. We shall institute the comparison, and commence with the writings, on this subject, of our distinguished countryman, Dr. Rush. He remarks that "in a few minutes after the patient has swallowed the water, he is affected by a dimness of sight; he staggers in attempting to walk, and unless supported, falls to the ground; he breathes with difficulty; a rattling is heard in his throat; his nostrils and cheeks expand and contract in every act of respiration; his face appears suffused with blood, and of a livid colour; his extremities become cold, and his pulse imperceptible: unless relief be speedily obtained, the disease terminates in death, in four or five minutes. This description includes only the less common cases, of the effects of drinking a large quantity of cold water, when the body is preternaturally heated. More frequently, patients are seized with acute spasms

in the breast and stomach. These spasms are so painful as to produce syncope, and even asphyxia. They are sometimes of the tonic, but more frequently of the clonic kind. In the intervals of the spasms, the patient appears to be perfectly well. The intervals between each spasm become longer or shorter, according as the disease tends to life or death." Dr. Rush adds, "I know of but one certain remedy for this disease, and that is liquid laudanum. The doses of it, as in other cases of spasm, should be proportioned to the violence of the disease. From a tea spoonful to near a table spoonful have been given in some instances, before relief has been obtained. Where the powers of life appear to be suddenly suspended, the same remedies should be used, which have been so successfully employed in recovering persons supposed to be dead from drowning." *Rush's Works*, p. 342, &c.

Dr. Jackson relates a case in which the effect of cold water taken into the stomach when the body was much heated, was manifested principally by the morbid changes that took place in the mind with regard to sensation; and remarks, that in other cases "the effect is chiefly confined to the organ to which the water is immediately applied; the structure of which is sometimes so much injured as to exhibit signs of inflammation, mortification, and local death; and on many oc-

casions, sudden cramp or spasm is induced by it in such extent, as to strike the subject dead at once by a first impression, like a stroke of lightning." *Jackson on Cold Water*, p. 377.

Dr. Currie, in his Medical Reports, relates a case that came under his observation "of a young man who had been engaged a long time in a most severe match at fives, and who drank a large quantity of cold water at once: he laid his hand on his stomach and bent forwards; his countenance became pale, his breath laborious, and in a few minutes he expired. Various methods were employed to restore him, but in vain."

"Scaliger relates the case of a reaper, who, stooping down to drink at a fountain after severe labour, instantly expired. Heister also relates the case of a young man who took a large draught of cold water mixed with snow. An inflammation in the stomach followed, terminating in mortification, of which he died." *Currie's Med. Reports*, p. 98, et seq.

The great difference of the symptoms, in the cases just quoted, from those which were observed during the summer in the instances of reputed disease from drinking cold water, cannot fail to strike the attention of the reader. Our subject furnishes a very strong illustration of the force of popular prejudice, and of the injury to science and humanity that oftentimes arises out

of preconceived opinions. According to the rules of Lord Bacon, we are not to seek for more causes than are sufficient to account for the phenomena that are produced. It is well known, to the medical world at least, that an ardent sun is capable of producing in the human body, what is denominated a coup de soleil, or stroke of the sun, altogether by its own influence, unaided by the use of cold water; and that the effects of it on the human system, are analogous to those which we have noticed in some of the persons who were said to have been affected during the last summer by drinking cold water. It is also well known, that similar apoplectic and paralytic affections oftentimes follow the intemperate use of spirituous liquors; and in persons addicted to intemperance, or otherwise predisposed to apoplexy, that muscular exertion, combined with the excitement of great heat; and even the excitement of great heat alone, in plethoric habits, will frequently induce severe and fatal attacks of that disease. If spirituous liquors are admitted to have the powerful agency that is ascribed to them in the production of diseases of the head, how much more shall we dread their influence when conjoined to the distressing irritation of heat? It does by no means invalidate the argument, to reply, that the symptoms of disease of the brain were frequently removed without bleed-

ing; since both coma and apoplexy may occur from distension of the blood-vessels of the head, without either serous or sanguineous effusion: for, it will be recollected, that on an attack of these symptoms, the person immediately passes into a state of rest and of protection from the heat of the sun, and in that situation may in the course of a short time recover, like one who is under the excessive and apoplectic effects of strong drink. We do not intend to deny the usual effects of drinking water, nor to reject altogether the agency of that fluid in the production of these symptoms; for we believe it to have been a collateral cause of them, but not so much, however, by its temperature, as by its quantity. Several instances have come to our knowledge of ice water having been drank by the mowers in the country, during those hot days, in different parts of the country, without the least inconvenience, or any interruption to their work, beyond the time employed in drinking it. The numbers of persons who are in the habit of taking iced cream and iced fruits under the highest excitement of heat, and especially the multitudes who, while perspiring at every pore, freely drink large draughts of Soda water, much colder than the water of our pumps, ought to be expected to furnish frequent instances of the bad consequences, if not even the fatal effects, of imprudently re-

ceiving cold drinks into the stomach. We recollect an instance of complaint subsequent to the use of highly refrigerated soda water; the symptoms of it were giddiness, faintness, oppression and sickness at the stomach; all of which might have been apprehended, independently of the drinking of soda water, by almost every one who saw the exhausted, heated, and agitated state of the person at the time of drinking it. From a single instance of this kind, however striking it may appear to a common observer, no general conclusion can philosophically be deduced. We have likewise heard of other instances of persons drinking soda water, and soon after complaining of an uneasy sensation at the stomach, which spontaneously disappeared, or was removed by a small draught of brandy or spirits; a sensation, which we are not inclined to ascribe to the coldness, or quantity of the soda water; but rather to the great exertion of the persons to prevent the escape of the fixed air, by drinking it as rapidly as possible; for, we have seen frequent instances of irregular muscular contractions, or partial spasms, and cramps of the throat, œsophagus, and stomach, induced by such exertions of the organs of deglutition, interfering greatly with the short and hurried respiration so frequently seen at the numerous fountains in our city. It is possible that the stimulating properties of the

carbonic acid gas, or fixed air with which the soda water is so highly charged, may counteract in some degree the deleterious effects of its coldness, as well as the injury that might otherwise arise from its bulk in the stomach; for persons are almost daily observed to drink several half pints of it at once, and of a temperature from six to twelve degrees lower than the pump water of our city. Labourers have also been frequently observed, while in a state of profuse perspiration, to quit their work and go to the spring at Saratoga, (in this State,) and to take several large tumblers full of that water, which is much colder than the water of this city, without any inconvenience whatever. Every season, however, furnishes instances of persons who have suffered immediate indisposition from drinking very large quantities of the Ballston and Saratoga waters; the weight and bulk of the fluid, occasioning an extremely uneasy sensation of distention and oppression of the stomach, followed by loss of appetite, sickness at stomach, head ache, languor, lassitude, dejection of spirits, and general febrile affection; symptoms which cannot fairly be ascribed to the chalybeate properties of the water, since they have all been observed to follow the inordinate use of the Saratoga water, in which very little iron has yet been detected, and which is impregnated with ingredients that

might be suspected to render it less capable of producing such symptoms, than an equal quantity of common well water. It was remarked by Dr. Campbell, late house physician to the New-York Hospital, to whom we are indebted for much information on this subject, that in one of the most violent instances of disease from drinking cold water, that was received into the Hospital, the severity of the symptoms appeared to be caused by the quantity of water taken into the stomach at one time. The patient stated that he first went and drank moderately, and felt no inconvenience; but his thirst not being satiated, a short time after he returned to the pump, and drank until he fell down. The subsequent affection of the chest in this case was very violent for a short time. The great danger from much distention of the stomach and bowels, is well known as a cause of fever, diarrhœa, sickness at stomach, weakness, torpor, coma, and apoplexy in adults, and is justly acknowledged by nurses as a frequent cause in children of vomiting, colic, spasms, cramps, convulsions, and fever. Dr. Currie, to whose writings we would refer the reader as reflecting much light on this subject, states, that "while the preternatural heat is sustained by continued exertion, cold liquids may be taken in moderate quantities without producing any injurious effects. They may even, l

apprehend, be drank copiously without producing suddenly the fatal effects ascribed to them; but, in copious draughts, they are found oppressive to the stomach during exercise, and excite languor, nausea, and sometimes vomiting. During the march of Alexander's army through the desert country of the Sogdiani, it is related that a few of the soldiers, by the advice of the natives, had provided themselves with water, of which, under their burning thirst, they drank immoderately. The consequence was, that they became heavy, feeble, and unable to support their arms, and this state of oppression was succeeded by severe vomiting." We have already quoted some instances of sudden death from cold water, related by Dr. Currie, who appears to have treated this subject in a manner more consonant to our views of it, than most of the writers whom we have consulted. He considers the consequences of taking cold drinks, to follow from the relative state of the body; with respect to the durability of the heat of it, or the duration and degree of the perspiration: the danger, for instance, increasing with the subsidence of the perspiration, or the rapid decline of the heat of the body. In speaking of intermittents he remarks that "throughout the hot stage of the paroxysm, cold water may be safely drank, and more freely in proportion as the heat is further

advanced above the natural standard. It may even be drank in the beginning of the sweating stage, though more sparingly. But after the sensible perspiration has become general and profuse, the use of cold drink is strictly to be forbidden. At this time I have perceived, in more than one instance, an inconsiderate draught of cold water produce a sudden chilliness both on the surface and at the stomach, with great sense of debility, and much oppression and irregularity of respiration. At such times, on applying the thermometer to the surface, the heat has been found suddenly and greatly reduced." This we apprehend to be a true account of the effects of cold drink taking place in a slight degree under certain circumstances; and that in the more aggravated forms of disease from this cause, the animal heat sinks to a degree which not only disturbs, but sometimes wholly and suddenly interrupts the actions on which life immediately depends, almost instantly precluding the application of all remedies; and it is only in the milder cases of this affection, that the application of bladders, filled with warm water, to the stomach, according to the direction of Dr. Currie, and the administration of frequent doses of laudanum, as advised by Dr. Rush, will successfully restore the heat of the body. The danger of taking cold drinks during the profuse sweats of

intermittents, is, we apprehend, fairly ascribed to the cooling process of perspiration carrying off rapidly the heat of the body, and thus diminishing its power of resistance to cold; and that while the heat and perspiration of the body is steadily supported by muscular exertion or general exercise, cold drinks may be safely and advantageously drank. Dr. Jackson, in his work on Cold Water as a cure for fever, observes, "Every person is, I believe, acquainted with the fact that cold water may be drank in quantity and with impunity, where the general heat of the body is highly increased; hence we infer that excess of heat is not the condition which renders this practice dangerous, as is believed vulgarly, even as is believed by Dr. Rush." Dr. Jackson ascribes the evil effects which occasionally arise from drinking cold water, to a preternaturally augmented susceptibility of body, and an exhausted condition of the powers of life from long continued exertion. However much he may have been supposed to differ from Dr. Currie, in his notions on this subject, we must confess ourselves unable, after the most careful examination of the doctrines of each, to point out their discrepancy; we are even strongly inclined to believe in their actual identity; for the dangerous condition of the body with respect to the use of cold water, in the opinion of Dr. Jackson, depends on an increased

sensibility, and a diminished power of action, and both these circumstances seem to be implied in Dr. Currie's explanation of it, that it is owing to an increased tendency of the body to part with its heat, and a diminished action of the arterial system. We cannot at this time, nor do we feel ourselves competent to go into an examination of the several conditions of the body, upon which the diversified effects of cold water depend; we shall content ourselves with having contrasted such cases as we have found recorded of the dangerous and sudden effects of cold water, with those which were so generally ascribed to the same cause, during the last summer, in this city. We feel a moral gratification in vindicating the character of that salutary beverage, and trust that we shall be able to defend it, in the opinion of some of our readers, from the imputation of being the sole cause of the late numerous cases of disease, and that we shall also be able to show that, in some of the instances alluded to by Dr. Rush, there is reason to doubt the correctness of imputing them altogether to the agency of cold applied to the stomach. No man was less disposed to sacrifice judgment and opinion to the homage of authority, than Dr. Rush, and in imitating his example in respect to a few only of his own opinions, we pay the highest compliment to his memory.

Dr. Rush ascribed the disease arising from the drinking of cold water, to the sudden abstraction of the heat of the stomach; for he recommends receiving the shock of the water first upon the exposed parts of the body, or the face and hands, in order that a portion of the heat may be conveyed away; and considers "liquid laudanum as a certain remedy" for it. We are at a loss to explain how the heat of the part should be restored by the operation of laudanum, or in what way it can so speedily effect the return of subtracted heat, as he adds, "that unless relief be speedily obtained, the disease terminates in death in four or five minutes." We would rather attribute its salutary operation, in many instances, to its stimulating and antispasmodic properties, from a belief, that the genuine cases of disease from drinking cold water, are owing to paralysis, or a sudden and violent attack of spasm or cramp of the stomach: we are inclined also to suspect, that in some instances the severity of this affection may induce inflammation of that organ; at any rate, inflammation of the stomach is stated on good authority to be a consequence occasionally of taking very cold drinks. If it do not arise from the violence and duration of the spasm, but is instantly produced by the chemical operation of cold, (analogous to the operation of frozen quicksilver on the skin,) it

would be highly improper to irritate the inflamed surface of the stomach by the stimulating properties of laudanum. To whatever cause the disease may be owing, or whatever may be the modus operandi of this proposed remedy, it is pretty evident that the cases we have described did not resemble the violent form of the cold-water disease, described by Dr. Rush and others; for many of them were protracted much beyond an hour before they reached the hospital, having been brought there from distant parts of the city, and without having received any previous assistance; nor did they resemble the more common form, which he describes as being marked "with acute spasms in the breast and stomach," as nothing of this kind was observed, excepting a pain or uneasy sensation in the stomach, that might occur from a variety of causes, in connexion with the hot weather, visceral congestion, and derangement of the primæ viæ. Nor is it to be presumed that eleven out of thirteen persons would have recovered from the violence of their symptoms, by the use of laudanum alone: it had merely a temporary effect, which may be accounted for from its property of allaying irritation, and diminishing increased sensibility; thus relaxing the skin, and promoting the tendency to perspiration. Its good effects in quieting the disturbances in the system of the drunkard are

well known. Dr. Currie bears testimony to the fact in the following passage: "Opium is more sudorific than alcohol, and given in that stage of the fever of intoxication in which the skin begins to relax, it often accelerates sensible perspiration, and sometimes occasions it, when it might not otherwise have taken place." In many of those cases of disease, therefore, that occur suddenly, in connexion with the excitement of ardent spirits and extreme hot weather, opium or laudanum might be judiciously administered, if not contra-indicated or forbidden by threatening symptoms of apoplexy, and especially, if at the same time it be given in conformity with the Brunonian doctrine, for the purpose of gradually reducing excessive morbid excitement. From an attentive consideration of the cases alluded to by Dr. Rush, it is reasonable to infer, that some of them may have been produced by the excitement of liquor, the irritation of heat, and disorder of the system, generally, in persons actually affected with, or very strongly predisposed to, topical congestions of the head, liver, or lungs; for he observes, that "persons who have recovered from the immediate danger which attends this disease, are sometimes affected after it by inflammations and obstructions in the breast or liver," and adds, "that these generally yield to the usual remedies which are

administered in those complaints, when they arise from other causes." There are few spasmodic affections, excepting colic, that are apt to terminate in inflammation; even violent attacks of tetanus, which particularly affects the stomach and chest, "are seldom attended with any fever*." The violent and repeated attacks of spasms, in the instances that are so often observed, under the appellations of cramp and gout in the stomach, are not followed by inflammation of that, or of the neighbouring organs; nor is the violent spasmodic affection and convulsive vomiting, which are so frequent in hysterical patients, nor the severe affections of the same kind, connected with acidity and flatulency, that are daily witnessed in the stomach and bowel complaints of children.

Dr. Rush remarked, that the disorder from drinking cold water seldom happens, "except when the mercury rises above 85° in Fahrenheit's thermometer," and that "it falls chiefly upon the labouring part of the community;" by which may be understood, it is presumed, the very lowest class of workmen, day-labourers, or that motley group, consisting of persons and foreigners of every description, and addicted to intemperance and vice; who drink infinitely more ardent spirits during the summer, to enable them

* Vide Thomas' Practice.

to *endure or to ward off the heat*, than they are capable of procuring in the winter, *to protect themselves from the cold;* and hence we may explain or understand, why "punch, beer, and even toddy, when drunken under the same circumstances as cold water, have all been known to produce the same morbid and fatal effects." That several instances of disease did occur during the hot weather of the last summer, which were attributed to imprudently drinking cold water in a highly heated state of the body, we have the testimony of respectable physicians, who had recourse to the same means of relief that were resorted to in the Hospital, and with similar success; many of them had no hesitation in ascribing the disease to the combined operation of heat and ardent spirits, and characterised them by the appellation of "rum and sun cases." Most of the persons admitted into the hospital, afterwards acknowledged that they had drank an unusual quantity of ardent spirits, and that they had suffered very much from thirst and the heat of the weather. Most of the cases that we have seen, or heard of, occurred after dinner; many of the persons had previously drank several glasses of spirits, and were at the time of the attack exposed to the scorching rays of the sun, at the hottest period of the day; most of them were entirely unaccustomed to the climate, a few only

had been steadily at work for any length of time, and some had spent the greater part of the two preceding months in idleness, or on board of vessels in which they were inactive passengers. Many of them, unaccustomed to the freedom and facility of procuring spirits, which greeted them in carousing with their new acquaintances, were debilitated and predisposed to fever at the time of finding employment, and consequently unfit to keep pace with their fellow workmen. In several of them, the approach of the disorder, instead of being sudden, was remarked to be gradual, and preceded by symptoms of headach, weakness, oppression, and inability to work, demanding fresh supplies of spirits and of water: in the course of a short time, vomiting succeeded, the power of voluntary motion ceased, the patient, unable to stand, sunk to the ground; the pulse full, hard, and quick; face red; skin hot; breathing difficult; coma, and approaching apoplexy. In some of the cases the vomiting appeared to take place not only from the distension of the stomach, and the peculiar operation of heat and fatigue on the primæ viæ, but from an affection of the brain, in connexion perhaps with great infraction of the liver; and in others, the affection of the head is said to have shown itself by delirium, or fierce alienation of mind approaching to phrenitis. During the severity of the hot weather, and subsequently

to it, affections of the stomach and bowels were very frequent, even among adults; vomiting, colic pains, diarrhœa, dysentery, and cholera morbus, were observed, of unusual violence; the number of reported cases of typhus fever, by which we may or ought to understand, in nine out of ten cases, synochus and bilious remittent fever, was unparalleled; spasmodic affections, from a slight tremor to violent convulsions, were often observed. Epileptic fits, and violent paroxyms of hysterics, with antecedent and subsequent spasmodic irritations of the throat, chest, diaphragm, and stomach, were apparently excited by the temperature of the season, exposure to the alternations of day and night, and the vicissitudes of the climate, in conjunction with visceral congestion, and disorders of the alimentary canal. In several instances, labourers were unable to work, and they experienced a degree of languor and prostration of strength, which continued for many days, and sometimes terminated in fever, or intestinal disease. Pulmonic patients, and persons who had lately arrived in the United States, though in the pure air of the country, suffered so much from dyspnœa, prostration of strength, and general distress of body, as to alarm themselves and their friends; and, in a few instances sunk, apparently stimulated, irritated, and exhausted, into the arms of death.

REFLECTIONS

ON THE

MEANS OF RECOVERY AFTER SUBMERSION,

DIRECTED BY THE

HUMANE SOCIETY OF NEW-YORK.

ADDRESSED

TO THE PRESIDENT AND DIRECTORS.

GENTLEMEN,

As the Humane Society has a just claim upon every member of the Medical profession for such information as he possesses in relation to the objects of its benevolence, it was to be expected that the defects of its system for the recovery of persons apparently dead from drowning, would have been pointed out by those whose age and eminence would have given weight to their opinions.—Since, however, no one has come forward to advise you, I venture to offer a few reflections upon this subject.

It is far from my intention to detract in any manner from the merit of your exertions, in stating, that little advantage has resulted from your

apparatus and printed directions for resuscitation.—I have inquired at the depôts, at the foot of Courtland street, at Beekman slip, and at the New Market, and have heard of one person only, who has been recovered within the recollection of my informants. According to report of Monsieur Pia, the superintendant of the establishment for the recovery of persons apparently drowned, in Paris, there were restored in that city, during the sixteen years subsequent to 1772, eight hundred and thirteen persons, apparently dead from submersion; and during the same period, only one hundred and twenty cases were unsuccessfully treated.—Mr. Alexander Johnson, in a Report to the Humane Society of London, states, that from the year 1774 to 1787, a period of thirteen years, eight hundred and ninety-seven instances of resuscitation occurred in London. These facts leave no doubt of the practicability of improving your present system. Permit me, therefore, respectfully to point out what I consider the causes of your comparative failure, and to suggest some means for removing them.

Your machines are unnecessarily complicated, and consequently difficult to put in order and to manage. They consist, generally, of many detached parts, which must be separated, that they may be placed in the boxes designed for them; these parts are very liable to be mistaken

one for another. Indeed, it requires no little ingenuity, to discover how the several pieces are to be fitted together; and in scenes of confusion, it is scarcely possible that less than five, or even ten minutes, should be consumed in adjusting them. After the unnecessary loss of so much time, even the best means will rarely succeed.

Moreover, your apparatus are not alike: The one at Beekman slip is different from that in Courtland street; and that near the New Market has little resemblance to either; and consequently if a Physician take the pains to familiarize himself with the management of one machine, he is not secure against embarrassment in the use of another.

It is evident that these evils might be obviated, by sacrificing the studied compactness of the apparatus to real utility.—I would respectfully suggest the propriety of fitting the several pieces permanently together, that they may always be kept ready for immediate use. This would require no other expense than that of providing light pine boxes, somewhat larger than the present mahogany cases. It would also be a very great advantage to have all the machines precisely alike.

The Directions published under your authority, for the restoration of persons apparently dead from drowning, appear to require many altera-

tions, beside those which must result from the improvement of your apparatus.

The first of these directions is as follows: "Avoid any violent agitation of the body, such as rolling it upon a cask, or hanging it up by the heels, but carefully convey it with the head a little raised to the nearest house." It must be allowed, that, where better means can be employed without loss of time, the practice of rolling the body upon a cask ought not to be adopted. The impression, however, conveyed by your direction, is, that such treatment is positively injurious; which probably is not correct. Numerous cases of recovery after submersion are related, in which life appears to have been restored by rolling the body upon a cask, and other analogous practices: such, for instance, as placing the body across the back of a horse, and making the animal trot. The utility of these means, which was discovered long before their mode of action was fully understood, is perfectly explicable by a reference to the mechanism of the organs of respiration. This process takes place by the alternate enlargement and diminution of the capacity of the chest, produced respectively by the elevation and depression of the ribs. Death by drowning is induced chiefly by reason of a suspension of this process;—first for the want of air, and after the person is taken from the water, from

the inability to move the chest. In these cases the primary object is to restore respiration—to do precisely that, which every animal must incessantly do, in order to live, and which the patient would do, had he not lost the power, i. e. to raise and depress alternately the chest. I have published a very simple and successful mode of doing this with the hands: permit me to explain how the same object is effected by the practice you reprobate:—As the body is pushed forwards with the breast upon the turning cask, the anterior part of the thorax is pressed towards the spine, and towards the face. The sides of the chest are drawn, at the same time, towards the feet and towards each other; and in the further advance of the body upon the cask, the contents of the abdomen are pressed towards the upper part of the chest. The capacity of the thorax being thus diminished in front, at the sides and below, the air (of which some always remains in the lungs) is forced out. When the patient is drawn back, all these circumstances are reversed, and air is consequently inhaled. I hope these explanations will not be considered as irrelevant; my object is to show that the practice your directions condemn, is sanctioned both by experience and by reason. Your reprobation of it is the more to be lamented, because it is often the only means that can be adopted. It is even questionable, if, in every

case, it do not offer a better chance of success, than a compliance with the subsequent directions.

Your printed papers next direct to "Strip and dry the body, and lay it in a warm blanket, which must be changed every few minutes. If a child, place it between two persons in a warm bed." Were any one of you to find a domestic animal—(excuse the familiar illustration)—were any one of you to find a horse, strangled by his halter, and cold and wet, would you rub him dry and cover him with warm blankets, in order to resuscitate him? or would you loose the cord around his neck, and let him breathe? Every animal submersed in water is in a state of suffocation, and if not taken out before the power of voluntary respiration is lost, it has, or might as well have, a cord about its neck, until air is made to enter the lungs. Because bodies taken from under water are generally cold, it does not follow, that the application of heat is the best means of restoring life. The coldness arises from the interruption of respiration, and the first object should be to restore that function which is the source of animal heat. What would the advocates of a contrary doctrine do with a person apparently dead from drowning in a warm bath? If to restore animal heat by external means be the primary object, then the person who is nearly drowned in the warm bath

should immediately be plunged *under* the warm water, that every part of his body may be heated: even the head should be kept beneath the surface of the water! For, what is the utility of letting it be above water, if the lungs are not to be filled with air? Such treatment would indeed *warm*, but it would never *resuscitate* a cold, and apparently lifeless body. Paint to yourselves the situation of a breathless "child, placed between two persons in a warm bed." It is cold chiefly because respiration, the source of its heat, is suspended. Its situation precludes the application of means for inflating the lungs. It would lose nothing by exchanging places with the patient who is held under warm water in order to be resuscitated. But enough of reasoning;—let us appeal to experience. Children are often apparently drowned immediately after their birth, by lying with their faces in a pool of water. No well informed practitioner, or nurse, attempts to resuscitate them by the application of external heat. The means which are found successful, are patting the buttocks, tossing the body about, exposing it to fresh air, and above all, inflating the lungs. Can any good reason be assigned for pursuing a different practice in cases of asphyxia from submersion?

The third of the printed rules is in the following words:—"Immediately apply warm spirits or

brandy to the temples, breast, belly, feet and hands; at the same time the whole body should be diligently rubbed with warm cloths, or if at hand, immerse the body in a warm bath." The patient is still to be viewed in the light of an animal with a tight cord around his neck. He is not able to breathe, and no means of helping him to re-commence respiration are offered. The three first of the directions relate to other objects, and if faithfully followed, so much time is consumed that little can be effected by any subsequent measures.

Your fourth direction is as follows.—"Introduce the pipe of a pair of bellows into one nostril, keep the other nostril and the mouth closed, inflate the lungs till the breast be a little raised, the mouth and nostrils must then be left free and the chest gently pressed, in imitation of natural breathing, and the whole process repeated and continued at least ten or fifteen minutes." This direction has been shown to be out of place. It is also exceptionable in itself for the following reasons: There is usually about the epiglottis a large quantity of frothy matter, probably air, water, and mucus, which closes the passage to the lungs. If air be forced into the mouth before this froth is wiped away or suffered to run out by placing the patient on his face, it must either pass into the stomach, or carry the froth be-

fore it into the lungs. How far the further distension with air of a stomach already overloaded with water, (as is commonly the case previous to drowning,) is calculated to impede respiration, will be sufficiently understood by a knowledge of the laborious breathing which follows a hearty meal, especially if the body be placed horizontally, or if exercise be taken. It is further illustrated by the distress which air, or, as it is termed, wind in the stomach, occasions to hysterical persons, and to children: and it is still more strongly exemplified in the fainting fits which over-feeding produces among infants. Should froth be forced into the wind pipe, it may prevent the patient from being resuscitated.

If to these objections it be replied, that a physician may be reasonably expected to reach the scene of accidents in New-York, and that he will wipe away any froth that may obstruct the passage to the lungs, and will also supply the further defects of your instructions, by pressing upon the gullet to prevent the air from entering the stomach, and that your apparatus may in his hands be useful;—it need only be stated, that on a late occasion, a person was taken from the water at Beekman slip, and the apparatus which your benevolence had deposited there, was pronounced by several physicians to be *not worth employing;*

and after some delay other means were resorted to, without success.

The fifth direction is in these words, "Inject into the bowels, by means of a syringe, a pint of warm spirits and water." So far this direction is perfectly good, entirely in place, and calculated to promote resuscitation. All the machines, however, are not furnished with a suitable instrument for injection; which is much to be regretted, since the bowels retain their life, or at least show evidences of life, after all other parts have assumed the appearances of death. But the conclusion of this direction appears to be particularly objectionable. These are its words: "This injection the society prefer to tobacco smoke, usually recommended in such cases." This language, especially if considered in connexion with the fact that more than one half of your apparatus, (especially of that deposited at the corner of Courtlandt and Washington streets,) consists of instruments for the use of tobacco, is calculated to encourage the use of that dangerous remedy. Tobacco smoke injections are frequently administered in cases of strangulated hernia, after other means have failed. They produce extreme relaxation, great prostration of strength, cold sweats, and a general depression of the powers of life. This is what is desired in cases of hernia, but it is precisely the reverse of that which should

be aimed at, in the process of resuscitating a person apparently drowned. The best informed medical men reject the use of tobacco-smoke injections as too dangerous to be employed in any case whatsoever. Several instances have occurred in which they caused death in a few minutes. But granting that some cases of suspended animation are of so desperate a nature as to justify the employment of even dangerous remedies, it does not therefore follow that tobacco-smoke injections, or tobacco in any form, (except perhaps that of snuff applied to the nose) is admissible. The effect of tobacco injections is to depress the powers of life; they retard, and may even arrest the movements of the animal machine. Mr. John Hunter disapproved of them, and Mr. Astley Cooper, one of the most eminent surgeons living, declares that "no surer means can be devised for preventing recovery after submersion, than the exhibition of tobacco-smoke injections." He states that of two animals immersed in water an equal length of time, *one* to which a tobacco-smoke injection was administered *died*, while the other to which nothing was done *recovered*. If it be urged that as the fatal effects of tobacco are known, there is no danger of its being employed, I would remark, that in a practical point of view it makes little difference whether a patient be prevented from re-

covering in consequence of receiving a tobacco-smoke injection, or because the machinery for administering that remedy, added to the useful parts of the apparatus, renders the whole so complicated, as to be incapable of expeditious and successful application.

I cannot conclude this long letter without expressing a hope that the Humane Society will lose no time in adopting such measures as are better calculated to accomplish this object of its charity, and that it will lay under contribution the best talents of this community to assist in their work of benevolence; and I venture to expresss my conviction, that the best means for promoting recovery after submersion, will be found so simple, that your society will enlarge the sphere of its humane exertions, so as to include the cases of persons who are apparently dead from hanging, breathing noxious gases, and taking poisons into the stomach.

ALEX. H. STEVENS, M.D.

Fulton-street, October, 1818.

ISABELLA JOHNSON.

CASES

OF

FUNGUS HEMATODES

OF

THE EYE.

BY ALEX. H. STEVENS, M.D.

CASE I.

March 3, 1818.

Isabella Johnson, a coloured woman, aged 37 years, was brought to the New-York Hospital on account of a fungous tumour proceeding from the orbit of the left eye. It projects over the greater part of the cheek, and extends laterally from the left alæ of the nose to the left temple; its most prominent point is about three and a half inches from the edge of the orbit. Its circumference, measured as near the face as possible, is nine inches. The tumour is moderately hard, and not painful to the touch; on the outer side it is covered with skin greatly distended, but not diseased: the inner side is smooth, shining, transparent, and studded with small prominences about the size of a shot, apparently covered by the conjunctiva: numerous blood vessels are seen ramifying beneath it: the

nose is excoriated by its pressure. The anterior and most prominent part of the fungus is in a state of ulceration; a coat of a light straw colour, resembling dried pus, covers it partially, and where this is abraded, dark purple spots are seen beneath. The tumour is irregularly tuberculated, its edges are reverted; it does not easily bleed: the eye-ball, partly covered by the upper eye-lid, and protruded without the orbit, is very much flattened before and behind, but not enlarged: it occupies the upper and outer part of the tumour, into which it is partially imbedded; notwithstanding which, it is susceptible of slight voluntary movements. The upper half of the cornea, which alone is visible, is flattened, but almost transparent. The retina and iris discover no organic alteration; the former, however, is insensible of light, the latter motionless. The diameter of the pupil is equal to about half that of the cornea. The secretion of tears is uninterrupted. The submaxillary glands on the left side are much swollen. There is also a glandular tumour over the left articulation of the lower jaw; these knots are quite moveable, and like the principal tumour, not painful to the touch. The patient is slightly comatose. She suffers at night especially from a pain shooting backwards through the left temple, for which she has taken Tinct. Opii. She has become ema-

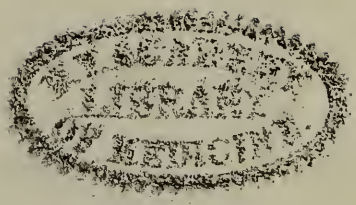
ciated of late. The menstrual discharge has been regular. The right eye is entirely free from disease. She states that her left eye became weak about six years ago, after an attack of measles; that it began to swell about a year since; that six months ago, (the tumour then being as large as a pullet's egg,) her eye still retained the power of vision. Being informed that an operation for the removal of the tumour would be hazardous, and that its ultimate success would be very uncertain, she says she prefers it to the prospect of certain death.

March 7th.—The tumour has sensibly increased since the last report: the cornea is more opaque, and the ulcerated portion greater in extent than on the 3d inst.: a few drops of blood oozed from the part to which the dressings had adhered.

An operation having been agreed on in consultation of the surgeons, I commenced it by a free incision backwards from the external edge of the orbit; from the termination of this incision the scalpel was carried around the lower part of the base of the fungus to the internal canthus, thence under the roof of the orbit to the external canthus, dividing the palpebral conjunctiva of the upper lid, and leaving the latter untouched. In separating the tumour from the cheek, several arteries sprung, which bled so freely as

to render it necessary to accelerate the operation; at the same time, the prodigious extent of the disease showed the impossibility of a nice removal of the morbid parts. The tumour was therefore quickly detached from its further connexions within the orbit, by carrying the scalpel around its posterior part. A ball of lint was placed upon the bleeding vessels, and the cavity of the orbit was filled with it. The patient being now in a state of syncope, was laid upon the floor, and took wine; as she recovered, the upper eye-lid was brought down, and the dressings kept perfectly tight to the divided surface by a monoculus bandage.

Dissection of the tumour.—Several portions of bone were removed with the tumour. The humours of the eye, all its tunics, and the optic nerve, were apparently natural. The mass of the tumour, since its removal, consists of a light yellow soft compact substance, partaking of the qualities of the medullary portion of the brain, and the intervertebral substance. There are several cavities filled with a soft straw-coloured unorganized substance not unlike custard, which has been baked too much. A lateral section through the dark coloured spots on the anterior part of the tumour discovered a congeries of blood vessels, livid on the outer edge, and gradually becoming more florid to the depth of



N°I.

The Cornea
Part of the Tumour
Excoriation
J. Milbert pinx. ad vivum.
A. Anderson sc.

Mr G's SON.

three quarters of an inch, where they terminate in the yellow portion of the tumour.

2*d day*.—A slight bleeding occurred since the operation; it was readily stopped by pressure.

3*d day*.—The patient is somewhat feverish; otherwise comfortable.

30*th day*.—She has been comfortable since the last report: the discharge has been good: the wound is diminishing in size: the submaxillary glands are smaller.

Afterwards the woman's health became greatly improved, and she passed six months in tolerable comfort. At the expiration of this time, however, it was evident that the disease was returning, though she was still able to pursue her ordinary business: the submaxillary and parotid glands had considerably enlarged, and she complained of pain in the tumour, which was increasing in size. At the present time (Oct. 1818) the condition of this poor creature is truly frightful; the tumour is quite as large as before the operation, and enormous tumours have formed on the left side of the face and neck.

CASE II.

A son of Mr. G. aged three years, complained of pains over the orbit of the left eye, which

were accompanied with moderate constitutional irritation. A seton was introduced into the neck, and mercurial and antimonial preparations were exhibited, under the idea that his disease was hydrocephalus; and this opinion was strengthened soon afterwards by the falling of the eye-lid of the left eye, the dilatation of its pupil, and gradual loss of sensibility in the retina.

On the 10th of April, when I first saw him, the globe of the eye was entirely hid from view by the upper eye-lid, which was distended, inflamed, and slightly œdematous. On raising the eye-lid the globe appeared somewhat enlarged; in other respects, except the dilatation of the pupil, the eye was perfectly natural, but it was evidently protruded; the angle formed by the nose and cheek, from the inner canthus half the distance to the inferior part of the septum, was partly obliterated; an acrid fluid oozed from the left nostril, which was impervious to air. All medicines were now suspended, and the seton was withdrawn. The left eye-lid was kept moist by an emollient application.

On the 17th of April, all the morbid appearances having increased, and the coats of the eye being distended, it was deemed adviseable to evacuate the aqueous humour. A small puncture was accordingly made through the cornea,

about a line from the ciliary ligament; the side of the instrument rested in contact with the iris. During the discharge of the aqueous fluid, that membrane contracted, and after the operation the pupil was contracted to half its former diameter.

On the following day the wound in the cornea was not visible, and the globe of the eye and the pupil had acquired their former magnitude.

On the 22d, the protrusion of the eye had become so great, that the upper eye-lid, though it had yielded much, no longer covered the globe, which had protruded to a distance equal to its natural diameter. A grayish silvery substance, seen through the cornea, seemed to occupy the anterior part of the posterior chamber of the eye, and to incline forward, pushing the iris before it, so as to threaten to rupture the upper part of the cornea. I believed it to be the chrystalline lens, rendered slightly opaque by inflammation, consequent to the pressure of a tumour, and by the same cause displaced anteriorly. With a cornea knife, introduced behind the ciliary ligament, brought out at the opposite point, and made to divide half the circumference of the cornea, the lens and all the humours of the eye were evacuated; the lens was perfectly transparent. A tumour protruded through the left nostril, beyond the septum, inclined to the

right side; the upper lip was excoriated; the velum pendulum palati seemed to be pushed forward; the parotid and submaxillary glands were swollen.

The accompanying plate, No. 1, exhibits a very accurate view of the parts on the 23d of April. The retina of the right eye is dilated, but otherwise natural. The diameter of the tumour was judged to be equal to two inches. It is moderately soft, and not very sensible to the touch.

5th May.—The right eye has lost its power of vision; the pupil has become dilated, as was the case with the other eye, and a grayish silvery body is seen. Some difficulty of respiration is experienced, especially in a recumbent posture. The tumour in the nose and that from the orbit have bled several times, to the amount of half an ounce.

On the 9th the child became unable to breathe while lying down; and on the 13th it expired, without exhibiting evidences of great pain, though greatly emaciated and exhausted.

Immediately after death, the tumour shrunk considerably, and lost its florid colour. It was removed in the same manner as in the preceding case, the friends not being willing to permit an examination of its connexion with the internal parts of the head. The consistence of this tumour was by no means so great as that

of the black woman, and it communicated to the hand the same soapy feel as the medulla of the brain,—more especially that part of it which lay within the orbit. The texture of the eye was totally disorganized. Small portions of the bones of the orbit face adhered to it. An opening through the lower and inner part of the orbit had afforded a passage for the adjacent portion of tumour into the left septum nasi. Except in the circumstances above stated, the organization of the tumour was similar to that of the black woman.

CASE III.

I WAS requested by the physician of the Alms-House, to visit a middle aged woman, who had suffered several years from a tumour proceeding from the left orbit. It had destroyed vision in the corresponding eye. The size of the tumour was less than that of a pullet's egg. A portion of it had been separated by the sloughing process. It was not particularly painful. The external appearances were very similar to those in the case of Isabella Jackson. An operation was proposed, but deferred on account of the patient's pregnancy. This was happily terminated about four

months afterwards. She nursed her child six months, then weaned it, and underwent an operation for the removal of the tumour, which had in the mean time increased in magnitude about one half: the operation was performed by Dr. B. H. Akerly.

Dissection of the tumour.—Beneath the external portion of the tumour, it did not present the purple spots formed by a congeries of vessels, and resembling a part of an animal severely bruized immediately before its death, as did that of Jackson. But the mass of it consisted of the same custard-like substance. In the posterior part were two coagula of blood, about the size of a hazlenut: the membranes of the eye were distinct. Of the pigmentum nigrum, or some similar black substance, the product of disease, an unusual quantity existed, not only on the retina and contiguous parts, but within the optic nerve to an extent of $\frac{3}{4}$ of an inch from its termination. In other respects this nerve appeared natural.

No untoward circumstance occurred, and the woman enjoyed tolerable health for six months. During the latter part of this period, however, a small moveable tumour, free from discolouration and pain, formed just below the inner edge of the orbit of the left eye. The poor creature's health became gradually worse: she became emaciated, and her countenance assumed a leaden co-

lour. She was not hectic, but suffered from the usual symptoms of cancerous cachexia. Tumours agreeing in external character with that on her face, formed in the axilla and groin. They acquired a prodigious size previous to her death, which occurred eight months after the operation.

From these gloomy details not one ray of consolation can be derived. The occurrence of disease in parts distant from the primary affection, in the two last cases, is too remarkable to pass without notice. It naturally tends to the conclusion that the disease is not local, and offers a strong inducement to the surgeon to limit his views to the smoothing of the avenues to the grave, from which he can neither free nor respite his unhappy patient*.

It will appear evident from the foregoing cases, that Fungus Hematodes affects the eye under different forms. The same is true of cancer. Not having met with any attempt to classify these affections, I would offer the following:—

Fungus Hematodes. 1st species.—The eye-ball is smooth, covered by its conjunctiva: the tu-

* In each of these cases the disease was in the left side. Was this accidental?

mour is smooth, and not ulcerated—exemplified in Case II. 2d species.—The surface of the tumour is tuberculated; its edges reverted; its most prominent part is covered with dark livid spots, partially concealed by the dried secretion of the surface—exemplified in Case I.

Cancer. 1st species.—Cauliflower excrescence with reverted edges, arising from the conjunctiva; if carefully examined, its base will be found small. This tumour may be successfully amputated in most instances. 2d species.—Cancerous affection originating near the eye, and extending to it.

A CASE

OF

CIRCULAR CALLOUS ULCER

IN THE

BOTTOM OF THE FOOT.

BY VALENTINE MOTT, M.D.

We do not recollect in the course of our reading to have met with a description of this kind of ulcer. The peculiarity of it consists, in a remarkable horny hardness of the thick cuticle of the bottom of the foot, and in its being more or less of a round form. From four cases of it which we have known, it does not appear to affect any particular age or constitution; nor is there any assignable cause for its origin. Very little pain either precedes or accompanies it. A great degree of insensibility may be said to form one of the characters of this ulcer.

The ulceration extends, sometimes by a small opening, to a considerable depth, even to the thecæ of the tendons, and about the joints, but not to penetrate the capsular ligaments, or to produce caries of the bones. All ulcers in the sole of the foot perhaps will have more or less tendency to

become callous, especially if much exercise be taken at the time; but the peculiar indolence, callosity, and circular form of this ulcer, with its extraordinary obstinacy, lasting frequently for several years, will be sufficient to give it a distinct character.

The case, as taken from the notes of the House Surgeon, is as follows:

John Middleton, born in New-York, thirteen years of age, was admitted into the New-York Hospital on the 2d of December, 1817, for an ulcer.

This ulcer has shown many peculiarities which render it particularly interesting. The patient had for several months previous to the appearance of the one for which he was admitted, been afflicted with several of a nature somewhat singular; but it is doubtful whether they bore any relation to the abovementioned.

He states, that nearly three years ago he fell, and bruised his knee just below the patella. The injury was not severe, and did not in the least prevent the motion of the joint, though it gave him some little pain. A few days after the accident, an ulcer broke out on the outer side of his knee; three others followed this successively; the second making its appearance a few days

after the first got well. The same took place with regard to the third. They were all within four inches of each other, and one immediately below the other. Shortly after the fourth healed, another appeared about three inches below the last; this was soon succeeded by another near the ankle. This was larger and more painful than either of the preceding.

Very little can be learnt of the character of these ulcers, as they were all sound when the patient was admitted into the house. He says, that when they first made their appearance, they looked as though a blister had been applied to the surface, the cuticle being detached and an effusion beneath. They were all long in healing, and none except the last gave him much pain. They were all superficial, and there was no discharge of pus from their surface, but of a serous fluid. The last occasioned much pain, and produced a swelling of the ankle, which remained several months, and he was a greater part of the time unable to use it in walking. He says also, that about the same time his other ankle swelled some and was painful; but as this was the case with several of the larger joints of the lower extremity, this affection was probably rheumatic.

About six months after the accident happened to the knee, just as the last ulcer was healing,

and about two years previous to his admission into the house, he perceived that the part immediately over the first joint of the great toe was swelled and considerably inflamed, though it had never given him any pain; the swelling continued to increase, and at length the integuments ulcerated; the ulcer became circular, and about one inch in diameter; it extended to the ligaments of the joint. From this period to the time he was admitted, it remained nearly stationary, seldom giving him any pain, or preventing him from taking his usual exercise.

At the time of his admission his ankle was still much swollen, and occasionally prevented him from walking: it was always relieved by cooling lotions and tight bandages.

To the ulcer itself various applications were made; at first, lotions of an astringent and stimulating quality were used: these seemed to have scarcely any effect upon it.

Scarifications were frequently tried, and sometimes a whole circle of skin removed from the edge of the ulcer; but a few days would again restore it to its former shape and dimensions.

Its cavity was several times filled with Pulv. Cantharid. and kept in for a number of days; this gave rise to no pain, and would effect no change: at least, never dispose it to granulate from the bottom.

At length an ointment composed of Acetas Cupri, and Lard, was used in the proportion of ʒ ss to ij. In about six weeks this effected a cure, and on the 27th of May he left the house.

On the 1st of September he returned again, having an ulcer exactly similar in the same place, and one possessing the same character commencing on the other foot.

It had continued sound until within three weeks of his admission, when it again broke out, succeeding an attack of intermittent fever.

A

SINGULAR CASE

OF

DISEASE OF THE HEART.

COMMUNICATED BY DR. PETER C. TAPPEN.

J. S. a native of New-Hampshire, aged 22 years, complaining of quotidian intermittent fever, was admitted into the New-York Hospital on the 7th of August, 1818. The fever, though obstinate, yielded to the remedies prescribed, and he was considered convalescent. He continued the use of his tonic medicines for some time, without appearing to recover strength, and as he complained of an uneasy sensation at night, which he called inward fever, some visceral obstruction was suspected as the cause; an alterative course of calomel was prescribed, and continued until his gums were slightly affected, and from this he appeared to receive some benefit; the appearance of amendment ceasing as soon as the soreness of the gums was healed, the calomel was resumed, and continued some time; but, as it did not now answer our expectations, it was discontinued, and capsicum in pill prescribed. He next complained of night sweats, diffi-

culty of breathing, and a slight cough. His pills were laid aside. A blister was applied to the chest, and an expectorant mixture administered. No sensible effect was produced either on his cough or respiration.

On the morning of the 4th of October, at the usual hour of visiting, he made no complaint: his pulse was regular, but slow, and his extremities rather cool: he ate his breakfast at the table, and suddenly expired a few minutes afterwards.

The body was examined; and on raising the sternum the following appearances were remarked:

The first thing which presented, was the pericardium, so much enlarged and distended as to fill the anterior part of the chest, and completely to obscure the lungs on each side; the pericardium being opened, about a pint of fluid was discharged; the heart was found much larger than usual, and its anterior surface was covered with coagulable lymph, showing marks of inflammation; the coronary veins were also much enlarged, and distended with blood. An incision was made into the left ventricle of the heart, and there was found a shining yellowish body, nearly filling the cavity, and attached to different parts of it, by little shreds of coagulable

lymph, resembling sewing-silk. On examination it was found to be a membranous bag, containing a semi-transparent gelatinous substance, resembling the fat of boiled beef: this being removed, the valvulæ mitrales were found partly ossified, and partly cartilaginous. The heart was removed for the purpose of a more favourable examination; and on separating it from the vena cava, a similar substance was found in the right auricle; also, in all the blood vessels from the heart into the lungs, and two in the aorta, extending as far as the arch; the other cavities of the heart were opened, and a body of the same kind was found in the right ventricle; the left auricle was empty; the lungs were free from disease. The contents of the abdomen were next examined; two substances of the same nature, about the size of a pigeon's egg, were found under the liver; the kidneys were unusually large, but had no appearance of disease: the other viscera were natural.

A CASE

OF

HEPATITIS,

BY JOHN WATTS, Jun. M.D.

B. B. a native of Massachusetts, aged 30 years, was admitted into the New-York Hospital on the 8th of January, 1818. He stated, that during the summer of 1816, he was employed as a boatman on the Santee Canal in South-Carolina, where he had an attack of intermittent fever, which continued until the following April. Immediately after the fever left him, his feet began to swell; he felt pain in the right side, and soon became completely anasarcous. He obtained some relief from bleeding, the application of a blister to his side, and cathartic and diuretic medicines.

He was a large stout man, with a sallow and bloated face: there was evident fluctuation of the abdomen, fulness and pain of the right side, the pain extending to the shoulder, and accompanied with a dry cough; his pulse was slow and feeble, respiration somewhat oppressed, tongue covered with a yellowish crust, and his

bowels very costive. A cathartic being premised, he was put upon the use of calomel and squills, and a blister was applied to his side. He continued on this plan for some time with apparent advantage; a slight ptyalism was produced; his dropsical symptoms subsided; but he continued to complain of pain, occasionally, in his side and shoulder, and had a dry cough. Early in February, he took cold from fatigue and exposure; the cough and pain in his side were aggravated; his pulse being small and slow, he was not bled, but was directed to resume the use of calomel, and had another blister applied to his right side. He continued to decline, and in ten days an abscess in his liver burst; the matter was discharged very copiously by the mouth; he expectorated, for a long time, a quantity of purulent and bilious looking matter, amounting to at least a pint in twenty-four hours. A generous diet and porter were ordered, with the view of supporting his strength under this copious discharge. The pain in his side increased; the cough was troublesome; his pulse became full and strong; and on the first of March, three weeks from the bursting of the abscess, he was considered completely hectic, having a distinct chill and fever every night, succeeded by profuse perspiration every morning. At this time he came under my care. The tonic plan was continued for about

a week longer; it was evident that he grew worse; the expectoration became more profuse than ever, greatly exceeding a pint in the twenty-four hours, and a very high degree of excitement was observed after each chill. A different mode of treatment being plainly indicated, the tonic plan, and stimulating food and drink, were discontinued on the 9th of March; and the patient was desired to take only toast and barley-water. He felt better on the 10th; his fever had in some measure subsided, and his expectoration was much diminished. A seton was inserted in his chest; and as his appetite was craving, small doses of tartarized antimony were ordered, to excite nausea; he was much benefitted by this mode of treatment; but, a few days after, he complained of pains in his limbs, resembling rheumatism. He was now greatly relieved by the loss of eight ounces of blood, and said that he could breathe much freer and easier.

On the morning of the 16th, the day after bleeding him, he reported, that he had spent a comfortable night; had had no chill the preceding evening, and very little fever; that his breathing was easy, his cough less troublesome, and the expectoration much diminished: the blood drawn was cupped, sizy, and extremely buffy. He continued the tartarized antimony, and took fifteen drops of the tincture of digitalis three times a day.

On the 18th, his symptoms again authorised bleeding, and he bore well the loss of sixteen ounces of blood; his expectoration became quite moderate, and he appeared in every respect to be much better; he complained only of a great tendency to perspiration, for which he was directed to take freely of diluted sulphuric acid. The patient himself soon became satisfied of the efficacy of bleeding, and familiar with the symptoms which rendered it necessary; a general direction, therefore, was given, to have recourse to it whenever those symptoms should return.

In the course of this treatment, small doses of the triturated mercury were given for a few days, but as it appeared to irritate the patient, it was discontinued. His cough being frequently very troublesome, and his rest much disturbed by it, he was occasionally allowed a sudorific anodyne at night.

From the 20th of March to the 1st of May, he was bled seventeen times, each bleeding amounting to at least fourteen ounces; on one occasion he lost near thirty ounces at once; and in the short space of less than two months, he lost probably more than two thirds of the whole mass of circulating blood. During the whole of the time, he was restricted to as simple and light diet as possible. The tincture of digitalis was

given for three weeks, and gradually increased to a hundred and fifty drops a day, when it was discontinued. Under this plan, his hectic symptoms soon disappeared altogether, and in a short time he expectorated scarcely any thing but mucus. His strength had improved so much, that he felt able to take exercise, and occasionally took long walks through very distant parts of the city. He was now advised to go into the country for change of air, and accordingly left the hospital on the 10th of May, with all the indications of returning health.

Doctor J. M. Campbell, of Charleston, South Carolina, late House Physician to the New-York Hospital, noted the particulars of this and the three following cases; and it is to his kind, judicious attention, and proper observance of general directions, that this patient's recovery is to be ascribed.

A CASE

OF

APOPLEXY.

BY JOHN WATTS, JUN. M.D.

J. E. born in Virginia, aged 32 years, a saddler, was received into the New-York Hospital on Friday the 10th of April, 1818. He stated, that on the evening of the preceding Saturday, he had a severe chill, followed by fever; soon after, he felt violent pain in his left side, breathed with difficulty, and was much distressed with thirst, and a hard dry cough. He had not received any medical aid.

He immediately lost sixteen ounces of blood, took a cathartic, and had a blister applied to the affected side. On the 11th, his symptoms were more favourable; the medicine had operated, and the blister drew well, but had a remarkably pale appearance; it was directed to be dressed with strong mercurial ointment, and a solution of tartarized antimony in mucilage of gum arabic, was given to him during the day. On the 12th, he was much worse; pulse strong, full, and tense; perspiration profuse; cough troublesome;

breathing laborious; with a severe pain in the breast and left side; fourteen ounces of blood were withdrawn: small doses of calomel and antimonial powder were directed to be given every two hours, a blister to be applied to the chest, and another to the side. On Monday the 13th, he appeared to be much better; his symptoms gradually abated, his appetite was returning, and two days afterwards, he was considered fairly convalescent. But on Friday the 17th, at 5 P. M. while sitting up, and taking a little nourishment, he suddenly fell back, with complete hemiplegia of the right side; his pulse was small and feeble, his countenance much distressed, and expressive of rapidly approaching dissolution. Stimulating enemata, volatile tincture of valerian, &c. were ordered. On the 18th, his pulse became full, and somewhat tense, his skin was heated, and covered with perspiration; a stimulating enema was administered, and cupping glasses applied to his head. The loss of blood causing his pulse to become stronger and fuller, the temporal artery was opened, and allowed to bleed till it affected his pulse; a few hours after, his pulse having risen, eight ounces more of blood were taken, with appearances of relief: a blister was applied to the back of the neck, and another to the chest. He was bled on the 19th, 20th, and 21st, about four ounces

each time, but without avail: he died on the morning of the 22d of April.

The patient being a tall, thin man, with a long neck, and well-formed head of moderate size, great interest was excited respecting the cause of the unusual and unforeseen event which terminated his life.

On examination, the lungs exhibited marks of recent inflammation, and in the left lobe there was a small abscess; the viscera of the abdomen were perfectly natural; a large quantity of extravasated blood was found on the surface of the dura mater; the brain and its membranes were quite turgid, a considerable effusion was found in the left ventricle, and at the base of the brain. The inner table of the skull was affected by caries in different parts: about the centre of the left parietal bone there was a caries of the size nearly of a sixpence, at which place a blood vessel was eroded; accounting for the extravasation, and the singularity of the case.

A CASE

OF

CHOREA SANCTI VITI.

BY JOHN WATTS, JUN. M.D.

JOHN MUSTON, a gilder, born in England, aged 49 years, was admitted into the New-York Hospital, with strongly marked symptoms of Chorea Sancti Viti. His occupation exposed him to the fumes of mercury. Five years ago he was affected with convulsive actions in different parts of his body, which gradually increasing, he was advised to discontinue his employment, and to go into the country, where in a short time he was restored to his usual health. In June, 1817, he returned to the business of gilding, and was soon affected with slight ptyalism, twitching of his right arm, and occasionally with a trembling of his whole body. Necessity compelled him to remain at his trade; his complaints increased very much, and at the time of his admission into the hospital, he had lost all command of the voluntary muscles; he could neither walk nor stand; he was unable to speak, and every attempt to articulate was followed by a confused

kind of muttering: his appetite was good, he had no pain, and slept well, excepting when roused by the violence of his convulsive motions. He was somewhat salivated, many of his teeth were loose, and his breath was quite offensive. His pulse being strong, full, and rather tense, sixteen ounces of blood were taken from his arm, and an active cathartic administered, which operated freely. The next day he was much better, and had not been disturbed the preceding night. He was directed to use the warm bath, to have his body rubbed frequently with spirits of turpentine, and to take occasionally some cathartic medicine. Under this plan he continued to improve, until the 6th of February, when, in consequence, it is supposed, of being for some time exposed to cold, and getting his feet wet, his complaints returned with increased severity: the tremor and spasmodic affection of his body and limbs being so violent as to render it necessary, at times, to hold him on his bed: his pulse at this time was small, the perspiration profuse, and his strength much exhausted by the violence of the spasmodic paroxysms. He was put upon the use of wine, bark, and generous diet, and continued them for several days, but derived no benefit; the tincture of castor was then freely administered, and flannel bandages were very firmly applied to each of the extremities. The

good effects of this last remedy in controlling the convulsive affection of the muscles, was very apparent, for symptoms of chorea always returned when they were removed. Some power of voluntary motion was soon acquired, and in the course of a week he was able to walk. After taking laxative medicines, ammoniated tincture of valerian, and muriated tincture of iron, for some time, he was discharged, cured, on the 6th of April, 1818.

A CASE

OF

INTERMITTENT FEVER.

BY JOHN WATTS, Jun. M.D.

J. G. a native of France, aged 30 years, a seaman, was admitted into the New-York Hospital on the 27th of February, 1818. On his passage from Liverpool he was attacked with a severe cold, attended with fever and pain in his left side. By the first of February, when he reached New-York, his cough had become very troublesome, attended with a thick viscid expectoration: the pain in his side was at times severe, and at 12 o'clock every day he had a violent chill, succeeded by fever. He was a stout athletic man, of the sanguineous temperament. He was directed to take a dose of calomel and jalap immediately, the Peruvian bark during the absence of the fever, and a sudorific anodyne draught before the accession of the paroxysm. The bark and anodynes were continued until the 4th of March, but without any effect on the fever, except rendering it apparently more violent. The cold fit was uniformly very long

and severe, followed by inordinate arterial excitement, and severe pain in the head, back, and breast; the paroxysms terminating in profuse perspiration, and leaving the patient extremely feeble, with a slow and weak pulse. The bark was omitted on account of the congestion of the chest, and spirits of mindereri substituted, in conjunction with a mixture for his cough. The next morning early he took a dose of castor oil and a large sudorific anodyne, in anticipation of his chill; the oil operated well, but the chill returned at the usual hour. On the 6th, a blister was applied to the thorax, on account of a severe pain there, and in the evening he took a pill of five grains of calomel, tartarised antimony, and opium, a fourth of a grain of each, and was directed to take at 11 o'clock the next day, seventy-five drops of laudanum, with twenty of the tincture of digitalis: the blister drew well: the pill had an emetic effect, and the next paroxysm was not so violent. An enema was ordered, and the quantity of laudanum and digitalis was increased ten drops each. On the 8th, the paroxysm was very violent, pulse strong and full; sixteen ounces of blood were drawn; the draught was repeated, and two grains of calomel and half a grain of tartar emetic directed morning and evening. He had a chill again on the 9th, but not so violent; the bleeding was repeated;

the pills continued; ninety drops of laudanum, with forty of tincture of digitalis, to be taken previous to the chill. On the 10th, no chill, but still great arterial action: ordered to take forty drops of digitalis morning and evening. On the 11th, the chill returned; after which fourteen ounces of blood were taken away. Had no chill on the 12th; pulse more regular, but full; blisters were applied to his ankles, and dressed with mercurial ointment. The next day the use of calomel was suspended, in consequence of his mouth becoming quite sore; and as his pulse was still full and quick, with some symptoms of topical congestion and affection of the chest remaining, he was directed to continue to take forty drops of the tincture of digitalis morning and evening. He continued free from the fever till the 21st, when he had a paroxysm, and in the afternoon of the same day he lost fourteen ounces of blood. By the 23d, the effect of the digitalis had become apparent; his pulse was soft, slow, and intermittent, and he complained much of dizziness of his head, and sickness at the stomach; the digitalis was discontinued, and a half grain of ipecacuanha ordered to be given every two hours. These powders, together with the occasional use of laxative medicine, were administered for some time: the cough and difficulty of breathing were soon removed; the

pain in his breast and side disappeared; his strength improved very rapidly; he became fat, strong, and florid; and on the 22d of April, he was discharged, cured.

A CASE

OF

BRACHIAL ANEURISM,

IN WHICH THE

LIGATURE WAS REMOVED FROM THE ARTERY

FIFTY AND A HALF HOURS AFTER ITS APPLICATION.

[The following case was communicated in a letter to Dr. Mott, by John K. Rodgers, M.D. one of the most promising pupils at the Borough Hospitals, London, at the request of Benjamin Travers, Esq. F.R.S. Assistant Lecturer on Surgery, and Surgeon to St. Thomas' Hospital, London, who furnished the particulars of the case, and performed the operation.]

John Smith, aged 37 years, was admitted February 11th, 1817, into St. Thomas Hospital, with a tense diffused tumour, yielding to pressure, in the bend of the right arm, inclining towards the inner condyle. It is about the size of half a hen's egg, cut longitudinally; free from pain on being handled, and quite void of pulsa-

tion. The brachial artery is traced distinctly on its outer side, passing towards the radius. The radial and ulnar arteries are both felt distinctly pulsating at the wrist, and pressure on the brachial, immediately above the tumour, puts a stop to the flow of blood in each. The motion of the joint is not at all interfered with, and he suffers no pain at the part; but the thumb and all the fingers, with the exception of the little finger, are benumbed, and very painful, and he has nearly lost the power of extending and flexing them.

He states, that about eight months ago he was bled; the cicatrix of which is now seen on the outer and lower part of the tumour, and about an inch on the inner side of the artery; that the blood flowed with great difficulty, and was of a dark venous colour. Soon after the bandage was applied, the arm became generally swollen as far as the wrist, but no hemorrhage of consequence issued from the wound. Under the application of lotions, the general tumefaction of the arm gradually subsided, and became more circumscribed around the orifice; pulsating strongly and distinctly, and continuing to do so until within the last three weeks. Pressure was applied for a considerable time, and he suffered great pain in the part until the pulsation ceased, when it became easy. No hissing noise is per-

ceptible, and he states that he has never observed this to be the case.

February 14th, 1½ *o'clock*, *P. M.*—The brachial artery was tied a little above the elbow, on the inner edge of the tendon of the biceps. A *single noose* ligature was applied, so as to render its removal practicable, if judged expedient. The pulsation in the radial artery immediately ceased.

February 15th, 10 *o'clock*, *A. M.*—Has suffered considerable pain since the operation, which completely deprived him of sleep during the night; but is free from suffering this morning, and states distinctly, that the pain and numbness in the right hand are considerably abated. The radial artery pulsates evidently, but with less force. In the ulnar no pulsation is perceptible. The arm is of the natural temperature to his sensations: pulse about 70, and somewhat labouring: tongue clean: bowels rather confined.

6 P. M.—He suddenly arose from his bed, labouring under mania, and solicited the removal of the ligature, being convinced that the blood was obstructed in its course, and flowing around the shoulder. His friends state that he has occasionally been the subject of mania, requiring constraint. Pulse 120: bowels not yet moved: ordered Ol. Ricini.

10 P. M.—Maniacal symptoms unabated: an opiate draught was given by compulsion, after milder means had failed.

February 16*th*, 12 *o'clock*.—Spent a noisy, turbulent night, without closing his eyes, and was with difficulty retained in bed. A dose of Ol. Ricini was given this morning, and has been followed by one copious evacuation of pretty healthy character; and he is now somewhat more composed. Pulse about 100.

4 P. M.—Is tranquil and collected. The ligature was removed after remaining upon the artery 50½ *hours*. In the accomplishment of this, much less difficulty was experienced, than had been anticipated; it was at first drawn longitudinally; but when it was found that the noose was slipping, it was drawn transverse to the artery. The pain attending it was not great, increasing, however, as the latter portion left the vessel. No hemorrhage ensued. The wound had adhered, except immediately around the ligature, which was surrounded by lymph: pulse much the same.

8 P. M.—Has again been refractory and noisy: another full motion. No pulsation in the artery below the situation of the ligature.

February 17*th*, 3 A. M.—Enjoyed about three hours sound sleep; prior and subsequent to

which he was as turbulent as ever; sitting up in bed, and using the arm operated on, with considerable violence. No hemorrhage or pulsation: countenance flushed, but free from febrile anxiety.

2 P.M.—Has been more composed since seeing some of his relatives. Pulse not above 80: tongue clean: no hemorrhage. There is a small discharge of healthy pus from the opening left by the ligature. Pulsation in the radial less distinct; none either in the brachial, at the tumour, or in the ulnar.

8 P. M.—Is still perfectly calm: no further evacuations: pulse 66, and somewhat labouring: tongue clean.

February 18*th.*—Slept the whole of the night, and has been perfectly tranquil since the last report. A dose of Ol. Ricini given this morning has operated briskly. Pulse 76, soft, and more free: tongue clean. The arm is easy.

February 19*th.*—Doing well; pulse natural; tongue clean: no pulsation immediately above the place where the ligature was applied; wound healthy; no discharge.

February 21*st.*—Has spent rather a restless night, but is quite composed this morning. Tumour evidently reduced in size since the operation, and not at all inflamed. A slight inflam-

matory blush surrounds the wound, which discharges a small quantity of matter tinged with blood. Pulse 62.

22*d*.—Has had a slight recurrence of his mental indisposition: wound discharges but little, and has not a perfectly healthy complexion: is in the occasional use of aperients.

23*d*.—Passed a very turbulent noisy night, walking about, and using the arm violently; is more collected this morning; pulse 88, and full.

March 1*st*—The wound has been closed some days by granulations, which are rather exuberant; applicet. Lot. Zinc. Oxyd.: the tumour is not as tense, more circumscribed and defined. He has still a sense of numbness and pain in the hand, though not in the same degree. The radial artery does not pulsate so firmly as before the operation: in the ulnar no pulsation is perceptible, nor in the artery *above* the tumour; it may be distinctly felt filled with solid matter; *below*, a very faint throbbing sensation is conveyed to the finger.

March 12*th*.—The cicatrix is disposed to ulcerate; tumour much the same as at last report; hand less numb.

March 14*th*.—Left the hospital without having signified his intention to do so.

Mr. Travers informs me, that the man has so far recovered the strength of his arm, as to return to his profession—that of a *prize fighter;* and within four months after leaving the hospital, he fought *two pitched battles.*

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ISRAEL ADAMS.

Dec.r 11. 1819.

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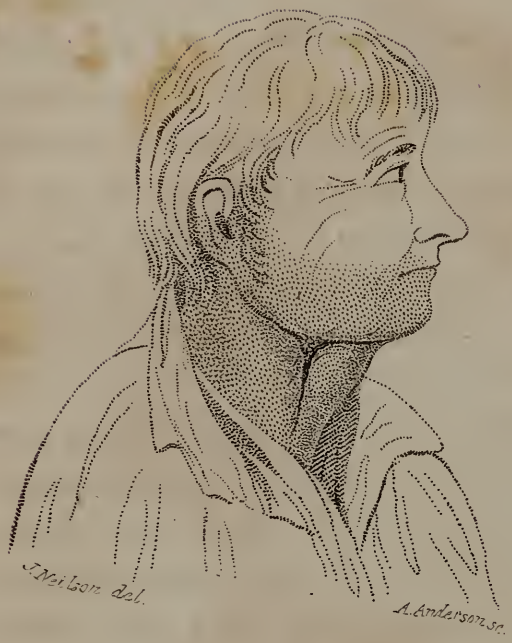


ISRAEL ADAMS.

March 1. 1820.

A CASE

OF AN

EXTRAORDINARY TUMOUR,

SUCCESSFULLY EXTIRPATED

BY ALEX. H. STEVENS, M.D.

ISRAEL ADAMS, aged 43 years, born in Massachusetts, a tall, thin, man, a farmer in the early part of his life, entered the New-York Hospital, by the advice of Dr. Post and myself, on the 8th of December, in order to undergo an operation for the removal of a tumour on the right side of the neck.

Its *general shape* was not unlike that of the uterus in the early months of pregnancy—its base answering to the fundus. Its *surface* was hard and lobulated, and covered with a thin skin of nearly the natural colour: several large veins were seen ramifying upon it, and an extensive cicatrix existed on its upper part.

The *base* of the tumour extended from the mastoid process of the temporal bone behind the angle and under the base of the lower jaw, one inch beyond its symphysis; and passing upwards and inwards, encroached upon the cavity of the

mouth, opposite to the molar teeth. In its course from the chin downwards it passed by the side of the thyroid cartilage, and two inches below it; thence backwards to the inner edge of the sterno-cleido-mastoid muscle, and upwards along the anterior edge of that muscle to the mastoid process.

The *body* of the tumour extended laterally two inches beyond the trachea—downwards, two inches and an half below the clavicle, and backwards one inch and an half behind the posterior edge of the mastoid muscle. Its circumference at the base was fifteen and an half inches—its length eight and an half inches. The patient usually supported it by an handkerchief passed over his head. It was moveable and loosely attached, except within the angle of the lower jaw, when it appeared to be connected more intimately with the adjacent parts—perhaps from repeated pressure and irritation in the act of mastication. When the tumour was raised by the hand, the thyroid cartilage was raised with it—when it was pulled down, that cartilage was prevented from being elevated, and swallowing was performed with difficulty; otherwise it did not impede deglutition, respiration or articulation. It gave no pain except from its weight, but it was unsightly, and burdensome, and prevented him from working.

Adams states that about twenty-seven years ago he first observed a small moveable tumour, which

he supposed to be a gland swollen from a cold, under the right side of the lower jaw a little before its angle. This increased in size and became more and more troublesome for a period of seventeen years, when he submitted to an attempt at its removal; but the Surgeon alarmed by the hemorrhage which followed the first incision, tried to twist it out, and finding that impracticable, relinquished the operation. After his recovery, the tumour continued to increase as before, and has latterly grown very fast.

The day after his admission, a consultation was called, and it was agreed that an operation should be performed.

December 11*th.*—The patient being placed upon a chair with his right side toward the light, and his head drawn toward the left shoulder, I commenced the operation by dividing at one incision, the integuments from a point an inch below the angle of the lower jaw, to another, one inch below its symphysis, and by continued dissection in the course of this first incision, I divided and secured in succession the principal vessels supplying the tumour. Two or three of them, probably the facial, the sub-lingual and the superior thyroideal bled so profusely, that I found it necessary to cover their open mouths with a finger until they could be tyed. The next step of the operation was to divide the integuments from the extremities of the first incision, by two incisions

downwards, which met each other at a point one inch and a half above the sternal end of the clavicle. Partly by cautious dissection, and where it was practicable by tearing the connexions of the tumour with my fingers or with the handle of the scalpel, I accomplished its removal, without much further loss of blood, or any untoward circumstance. The external jugular vein ran along the posterior edge of the tumour, but the extreme steadiness of the patient, (who regarded me with an expression of confidence and apprehension, easier felt than described) rendered the dissection of it quite easy. The separation of the tumour from the muscles between the os hyoides and the chin, and more especially from the parts connected with it behind the angle of the jaw, was more difficult; this was facilitated by suffering the weight of the tumour to put those parts upon the stretch during the dissection.

The triangular wound left by the operation exhibited the pulsations of the external carotid, the 9th pair of nerves, the digastric, the stylo-hyoid, and the mylo-hyoid muscles; and in general all the external layer of muscles which elevate or depress the os-hyoides and the cartilages of the larynx. On either side were angular flaps, and when these were approximated by a suture, the incisions resembled a T, the vertical portion of which lay upon the inner side of the sterno cliedo-mastoid muscle. The lips of the wound were kept in ap-

position by a single ligature passed through the angles of the flaps and the centre of the first incision, and by strips of adhesive plaister.

The external surface of the tumour deprived of the thin cutis which had covered it, was lobulated, smooth and of a bright yellow colour. A scalpel pushed into it, imparted to the fingers the grating feel of brisket, or, intervertebral substance. It contained several cavities from which a colourless fluid was discharged. Its weight, after diminution from this cause, was three pounds and an half.

December 13*th.*—The patient has been comfortable—is ordered a portion of the sulphate of magnesia.

December 16*th.*—The lint is loosened by suppuration and the wound is dressed. It exhibits a narrow cavity high up between the angle of the jaw and the pterygoid process of the os sphenoides.

March 1*st.*—The wound is healed and the patient entirely well.

I am indebted to Mr. John Neilson for the drawings of this case, and to Mr. James C. Townsend the House Surgeon for his unremitted care of the patient.

I cannot close this paper without adverting to the advantage of cutting and securing the trunks of vessels, before their branches are divided—an advantage more than sufficient to counter-balance the inconvenience of the blood from the upper incision, obscuring the dissection of the parts

below. A patient exhausted by repeated division of arterial branches may sink under subsequent hemorrhage, but if the trunks of the vessels are secured the branches give no further trouble.

In the 10th number of the Journal Complementaire du Dictionaire des Sciences Medicales, is an account of an operation communicated to the Academy of Sciences, by Baron Larrey, for the extirpation of a tumour, situated very nearly like that of Adams's.

The patient was placed on a bed. The operator by an incision, parallel to the edge of lower jaw, first divided the integuments which covered the whole extent of the tumour. Three other incisions intersected this at right angles, the first passed along the anterior edge of the sterno-cleido-mastoid muscle to the clavicle, the second passed over the centre of the tumour, and the third and smallest over the middle of the larynx.

The account concludes with this remarkable sentence. "The enormous wound having been washed, the operator approximated its numerous edges and angles, which he kept in contact by means of twenty stitches and some strips of adhesive plaister."

The surgeons of this country are not, I believe, much in the habit of washing wounds made by surgical operations, and they agree with Petit, in avoiding the inserting of numerous sutures.

A CASE

OF

EXTENSIVE INFILTRATION

OF

URINE,

SUCCESSFULLY TREATED,

WITH REMARKS, BY ALEX. H. STEVENS, M.D.

I WAS suddenly called on the morning of the 1st of April, 1819, to see a stout, middle aged porter, who was said to be dying from infiltration of urine. I found the lower part of his abdomen, his penis, scrotum, and perinæum greatly swollen and discoloured. The root of the penis and the contiguous part of the scrotum were livid.

He had contracted gonorrhœa eighteen months before, and had passed blood from the urethra. No injections had been used, but a stricture succeeded, which gradually grew worse, and was particularly troublesome when he exposed himself to cold. From such exposure he had suffered unusual difficulty in passing his water; about five days before I saw him, and in straining to empty

his bladder, he felt that the bladder was partially emptied, for although no water was discharged from the meatus urinarius, his scrotum and perinæum began to swell. He sent for assistance and repeated attempts to introduce a catheter were made without success. After 48 hours, during which he occasionally passed a small quantity of urine, the obstruction was complete, except that a few drops followed the repeated unsuccessful attempts to introduce a catheter, previous to my seeing him.

I found I could pass a bougie almost to the bladder without difficulty, but when the point of the instrument was near the prostate gland, it took a devious course to the right side, from which I could not divert it; I therefore scarified the scrotum and had him carried to the operating Theatre of the Hospital, to which I accompanied him. On his arrival, about half an hour afterwards, the mortification of the penis and scrotum had greatly increased, and a gangrenous that of the size of half a crown had appeared over the *linea alba*, about midway between the pubis and the umbilicus. The man's countenance was cadaverous, and a highly urinous odour was exhaled from his body. Indeed he appeared so far gone, that some of the medical gentlemen who happened to be present, considered the case entirely desperate, and discouraged me from attempting to relieve

him. Yet the indication was so clear, that the prospect of failure did not appear to justify me in not operating.

The patient being placed upon his back, I made an incision in perinæo as in lithotomy. The division of the integuments exposed to view a dark greenish coloured mass of dead parts; not a drop of blood flowed. I cut onward, endeavouring to guide the edge of the knife by the symphysis pubis, and divide the membranous part of the urethra and thence to introduce a small catheter or probe into the bladder; the swelling of the parts was such as to prevent my distinguishing accurately, either the lower edge of the symphysis pubis or the ramus of the left ischium, and in the mortified mass before me all parts were confounded.

There were two other routes by which I might reach to the bladder, 1. above the pubis, and 2. through the rectum. The soft parts were so much raised, anterior to, or as the patient lay, above the pubis, that the upper edge of the symphysis could not be marked with any tolerable degree of accuracy. On the other hand the prostate gland, although enlarged, permitted me to feel the fundus of the bladder above it. Here I opened it by means of a tonsil lancet, (the most convenient instrument at hand) and drew off a quantity of dark coloured fetid urine, that left a deep black stain upon the silver sheath of the instrument.

The lancet was detached from the sheath, which was left behind, and the patient was carried to bed. A cordial draught was administered, and cloths wet with yest were applied.

During the night, the sheath of the tonsil lancet slipt out, and before it was necessary to replace it, the urine found an outlet by the perinæum. The suppuration which followed was greater than any I have ever witnessed. The whole perinæum and the abdomen below the umbilicus, a large portion of the scrotum and the root of the penis were involved in it. Sloughs of cellular membrane and of the sheaths of the abdominal muscles came away, in pieces as large as the hand. A large extent of the rectus abdominis muscle was laid bare. Six openings were made at different times, in various parts of the belly, for the evacuation of matter. Until the sloughs separated, cloths wet with yest were applied; afterwards the cloths were wetted with a decoction of linseed, except where the pressure of a poultice seemed likely to prevent the lodgment of matter. The patient took bark, porter and a nutritious diet, first in conjunction with mild diaphoretics and afterwards without them; and at length, after eight weeks confinement he was able to walk about, and was soon after dismissed, cured: being then able to pass all his urine through the natural channel.

This case is introduced not merely as an extraordinary instance of recovery from profuse suppuration, but principally to illustrate.

1. The mischievous effects of violence in the use of the catheter, as tending to produce a rupture in the urethra.

The looseness with which writers describe the degree of force that should be employed, in the various operations of surgery, is much to be lamented—a hernia is to be reduced by *moderate* pressure:—a dislocated arm is to be replaced by *moderate* extension—*moderate* force is to be used in pulling upon the cord for the extraction of the placenta; this loose way of using terms, which is universal, does not convey any definite idea. It were much better if surgeons should say to their pupils, you may employ for the reduction of a hernia, a force equal to the weight of ten pounds; you may employ for the extension in the reduction of a dislocated arm, a force equal to the weight of fifty pounds; you may pull upon the cord with a force equal to the weight of three pounds; you may push in the catheter with a force equal to the weight of one pound. Surely this would enable a well instructed young man, to commence practice with a little less chance of learning from experience as it is termed, that is, being taught exclusively by his own blunders. In a man recently dead, I found that a force of

about six pounds pushed a blunt sound through the prostate, and into the bladder, about half an inch below the commencement of the urethra.

2. The danger of delay in affording a free outlet to the urine, after such rupture has occurred.

And lastly, the safety of making an opening into the bladder, through the rectum. I am not unaware that the authority of Dessault would have sanctioned another procedure, nor that my distinguished preceptor, Dr. Physick, has recommended the use of a catheter, with a stylet intended to be pushed through the stricture into the bladder. In other hands than his own, I should fear it would make a false passage, rather than restore the true one. At any rate, the operation which relieved Patrick may be performed by many, who could not open the bladder in any other way, without more instruments and more anatomical knowledge than most practitioners possess.

REMARKS

ON THE TREATMENT

OF

SECONDARY SYPHILIS,

BY ALEX. H. STEVENS, M.D.

THE principal object of the present paper is to make known the results of the writer's experience in the New-York Hospital, in the use of a compound syrup of sarsaparilla and guiacum, for the cure of what are termed cases of secondary syphilis, and other severe forms of disease arising from the action of mercury, in constitutions predisposed to scrofula.

The difficulty of distinguishing cases that require a further use of mercury, from those in which disease is kept up by the continued action of that medicine, after the administration of it has ceased, has led me to adopt as a rule, never to prescribe it, where it has been previously given in unascertained quantities; and three-fourths of the cases I have met with, have been immediately relieved, and to the best of my knowledge ultimately cured, by the use of the preparation allud-

ed to, and the decoction of sarsaparilla, without the necessity of a further use of mercury.

In well-marked primary cases, I have uniformly prescribed mercury, and have witnessed disappointment, when they were treated with sarsaparilla and guiacum, or the muriat of gold. The latter is stated by Dr. Johnson, the intelligent House Physician, to increase the susceptibility of the salivary glands, to the action of mercury, in cases where that mineral has been exhibited for the cure of sores which had not yielded to the muriat of gold.

Many cases of primary sores on the penis, perhaps not less than one-fourth of the whole number that have fallen under my observation, have speedily yielded to such means as were calculated to relieve any existing state of irritation of the system; such as venesection, rest, temperance in the use of ardent spirits, saline cathartics, frequent washings with soap and water, and the use of dry lint. I have indeed rarely prescribed mercury without this preparatory treatment.

Almost an equal number of cases have shown their dependence upon disorders of the digestive organs, by their rapid improvement and ultimate cure, under the administration of mild cathartics, simple diet, and the occasional use of some of the purer bitters.

Delay in the use of mercury has often shown me that sores, which I suspected to be chancres, proved not to be so, and I have never had occasion to regret that delay, when the sores afterward clearly showed their venereal character.

I have carefully abstained from the use of mercurial washes in doubtful cases, as tending to obscure their character, unless when I had become more convinced of their syphilitic nature; in which case I consider their improvement, by the local application of mercurial preparations, after other washes had failed, as an evidence of the necessity of a regular course of mercury. The milder preparations, especially the pill: hydrargyri have appeared to me preferable to those which are more active, and I have never produced designedly more than a slight degree of redness and tenderness of the gums.

The following is the formula for the preparation of the syrup of sarsaparilla and guiacum.

℞. Smilac. Sarsaparill.
Lig. Guiac. Off. aa lb. j.
Petal Ros. Gall. (sometimes omitted)
Gum. Mimos. Nilot.
Fol. Cas. Sen. aa ʒi.
Rad Amom. Zing. ʒss.
Aq. Font. Oxx.

Boil the first ingredients in the water for one hour, strain, and to the residuum add the same

quantity of water as before, boil for two hours, and toward the end of the boiling, add the other ingredients, strain and to both decoctions, add,

Sacch. Com.
Mel. Opt. aa lb. iij.

and boil the whole to the consistence of a syrup.

Dose ʒij. to men, ʒi. to females, twice a day.

The patient is directed to take the first dose early in the morning, and the second, four hours after dinner. He is also to take, during the day, twelve tumblers of the sarsaparilla ptisan, seven before dinner, beginning two hours after having taken the first dose of the rob, and five after dinner, beginning also two hours after the second dose.

Sarsaparilla Ptisan.

℞. Rad. Smilac. Sarsap. ʒij.
Aq. Fontan. Ovi. M.
Boil to Oiv.

In summer the strength may be diminished.

The rob of Laffecteur which has attained so much celebrity, is believed to be an analogous preparation, containing however a small portion of the muriat of mercury. I have found it produce a great aggravation of the symptoms in a case of secondary syphilis, or more correctly speaking of mercurial irritation, which immediately improved, and was at length cured under the use of the syrup.

It gives me pleasure to subjoin the following extract of a letter I have lately received, from my venerable friend, Doctor Thomas Parke of Philadelphia, whose extensive experience in complaints of this kind, for more than forty years, in the Pennsylvania Hospital, gives great weight to his opinions.

"I directed agreeably to your request, a quantity of the compound syrup of sarsaparilla and guiacum to be prepared, and selected a number of patients for whom I thought the remedy was adapted. I have now the pleasure of informing you, it has afforded relief in *nearly all* the cases in which I recommended it to be used; some of which were effected with secondary syphilis, imperfectly cured by mercury, and others with obstinate rheumatic complaints. In all cases the pains were speedily diminished, and in many instances wholly removed."

A CASE

OF

CONTRACTION OF THE VAGINA,

FROM

SLOUGHING CAUSED BY

A TEDIOUS LABOUR,

IN WHICH

THE CICATRIX

WAS SAFELY DIVIDED BY A BISTOURIE TO FACILITATE PARTURITION DURING A SUBSEQUENT LABOUR.

BY ALEX. H. STEVENS, M. D.

A LADY aged 21 years, in the autumn of 1815, remained in labour with her first child during a space of nearly three days. The presentation was natural, and the obstacles to a more speedy delivery appeared to have arisen from the disproportion between the head of the fœtus and the size of the pelvis, and the cessation of the pains in an advanced stage of parturition. The child, however, was delivered without manual assistance, and is believed to have died during the labour.

The pressure of the child's head upon the soft parts of the mother, occasioned extensive sloughing of the vagina, and incontinence of urine. The lady's life was despaired of. She could not be lifted up in bed for six weeks:—During this time, she took porter freely, and yest was applied to the parts. For the latter application, a decoction of oak bark was afterwards substituted, and at length when the ulcer left by the separation of the slough became healthy, it was dressed with dry lint, and means were taken to prevent the contraction of the vagina.

At the end of six months, when I first examined the patient, there was a firm band extending across the vagina, and barring the introduction of the finger. It appeared to be formed not only by the approximation of the lateral parts of the ulcer, but also of its posterior and anterior edges, so that the vagina was both contracted and shortened. The incontinence of urine was so great as to prevent the lady from going into company. The moment she rose from a sitting posture, the bladder was evacuated. Her Physician had prescribed, with little or no advantage, preparations of iron, tincture of cantharides, and a blister. I recommended aspersions of cold water on the loins, the injection of a decoction of linseed, and employed various mechanical means of dilatation, such as cylinders of wood, sponge wrapped in

varnished silk, &c. These created much pain when introduced; but they were pretty regularly applied for the space of six months; at the end of which time, the finger could be introduced into the vagina, beyond the stricture, though with some difficulty, and there was a little increase in the power of retaining the urine. In this state, to the great terror of herself and her friends, she became a second time pregnant.

The treatment adopted during the first three or four months, was directed entirely to the relief of her distressing sickness of stomach, and a severe bearing-down pain with which she was afflicted. After the fourth month, with occasional interruptions from the continued sickness of stomach, she used the flaxseed decoction, gum elastic tents, and hip-baths; living at the same time sparely, and taking, at the suggestion of some of her friends, a decoction of slippery elm.*

At the expiration of the seventh month, the lady, having in the intermediate time, suffered constantly, severe pain in the vagina, arising, as I conclude, from the tension of that canal by the ascent of the uterus into the abdomen, the stricture had dilated sufficiently to admit a finger freely. Discouragement and indisposition caused her to ne-

* This is said to diminish the size of the fœtus, and to procure easy delivery.

glect the regular use of the hip-bath and injections, from the end of the 7th, to the end of the 9th month, yet during this period the greatest enlargement of the stricture took place, perhaps in some degree in consequence of the warmth of the season, but owing chiefly I apprehend to the relaxing effects of the secretion, which takes place particularly in the latter weeks of utero-gestation.

At 4 in the morning of the 9th of August, regular labour pains came on, and the head presented; the vagina *external to the cicatrix* became perfectly relaxed, and the cicatrix itself was so far dilated as with perfect ease to admit a finger. At 7 the membranes broke spontaneously, although I endeavoured by keeping the lady perfectly quiet, and by requesting her not to exert herself, to retard that occurrence.

The pains continued natural, the cicatrix gradually yielded so as to leave an opening of the size of half a crown; at 9 o'clock, a powerful contraction of the uterus, the last of a succession of severe pains, lacerated the membranous cicatrix, posteriorly and a little on the right side; and a full-sized child was born in a state of asphyxia, from which however it was recovered. No injury was done to the perinæum.

The patient had an easy getting-up, and nursed her infant. The contraction of the vagina returned, but not to so great a degree as before her

first confinement, and the incontinence of urine continued.

In September 1818, she became pregnant a third time—the incontinence of urine became considerably diminished during her gestation, and at the seventh month I examined her, and found the contraction somewhat less, than at the same stage of her second pregnancy. Labour came on at the full period; the presentation was natural, the membranes broke about five hours after its commencement. The external parts became relaxed as before, but although the cicatrix had dilated to an inch or more in diameter, and the pains were unremitted and severe, the head made no farther progress; being evidently obstructed by the cicatrix which appeared to be incapable of laceration or further distension. Under these circumstances, being apprehensive that the powerful contraction of the uterus would either endanger the life of the child, or rupture the uterus, I introduced while the pains were least urgent, a blunt bistoury between the head of the child and the membranous cicatrix, and divided the latter by several incisions, to the extent of an inch, as nearly as I could judge, at the point where it had formerly given way. This gave no pain, and the child was expelled a few minutes afterwards. Both mother and child did well, and are at the present time, June 1820, without

any treatment, the contraction of the vagina and the incontinence of urine have to a considerable degree disappeared.

A CASE

OF

ARM PRESENTATION,

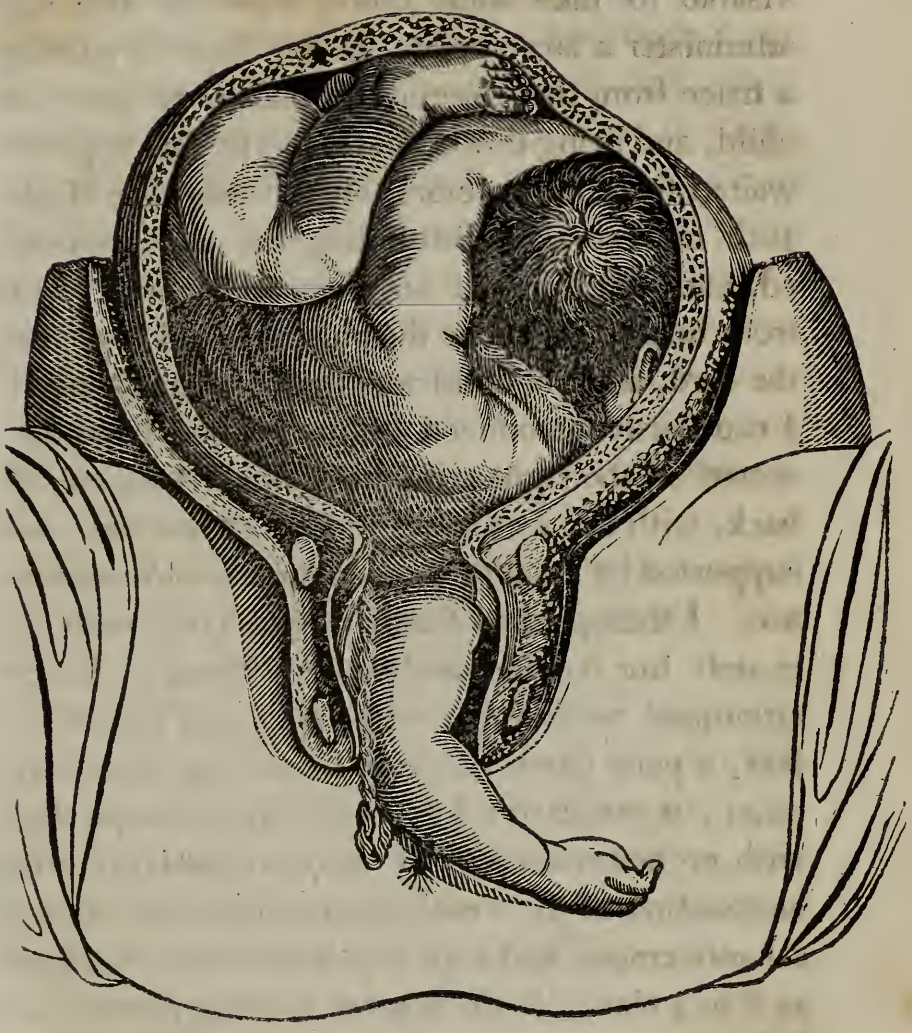
ATTENDED WITH UNTOWARD CIRCUMSTANCES, IN WHICH THE CHILD WAS EXTRACTED IN A PECULIAR MANNER.

BY ALEX. H. STEVENS, M.D.

I WAS called in the night of March the 9th, 1819, to a village about ten miles from this city, to visit a lady who was represented to have been in labour since the morning of the preceding day. —She was healthy, well formed, and the mother of several children. For three months previous to her confinement, she had been obliged to keep her bed, in consequence of a strain in getting out of a waggon, and her feelings had led her to anticipate unusual difficulty in her accouchement. Two medical gentlemen were in attendance, one of whom had been sent for only a few hours before I arrived. What the original presentation had been, could not be ascertained; but the cord was stated to have protruded, and the waters to have been discharged in the first periods of the labour. The practitioner last called in, after an ineffectual effort to turn the child, had brought

down the right arm, which, as far as the elbow, was without the external parts, and in some measure deprived of the cuticle: there was no pulsation in the cord. Since the preceding morning the pains had been severe, and now they had the peculiar character which usually attends the last stage of parturition: the external parts were exquisitely tender.

When she consented to an examination, I found, by the feel of the shoulder, the spine, the ribs, and the right side of the lower jaw, that the child lay with the trunk across the pelvis, with the head to the left side, and the buttocks to the right of the mother; the back to the abdomen, and the sternum to the posterior surface of the uterus. The following cut illustrates my idea.



As the bladder had emptied itself, and as there was great fulness of the pulse, it was deemed advisable to take some blood from the arm and administer a large opiate, in the hope of gaining a truce from the unremitting pains, to turn the child, and bring down the feet. In this hope we waited from four o'clock of the morning of the 10th, until seven. But finding the pains continued, and judging that no advantage could result from further delay, as the pulsation had ceased in the cord, and the child was unquestionably dead, I cautiously introduced a blunt bistoury, and dissected off the right arm, the woman lying on her back, with her feet over the foot of the bed, one supported by each of the gentlemen who assisted me. I then pushed firmly on the axilla with my thumb, but it could not be pressed back. I next attempted to introduce my hand and get at the feet; a pain came on, my hand was then kept quiet; it remitted; I repeated the attempt, but with no better success: I changed hands, but the contraction of the womb increased by the slightest movement, and kept the hand firmly wedged as if in a vice. In the hope of making more room I then opened the chest and removed the contents; when introducing first two fingers, and afterwards the blunt hook, I endeavoured by that hold to bring down the body, but ineffectually.

Another plan succeeded better, and it is chiefly with a view of suggesting this (of which I do not recollect to have heard or read,) that the present case has been drawn up. This was the making an incision as high up on the back as I safely could, with a blunt bistoury passed along the fore-finger; inserting a blunt hook into it, and pulling in a direction obliquely downwards and forwards, so as to bring the buttocks down, and having partly succeeded, I made a second incision, immediately above the hip, introduced the hook as before, and extracted the child, breech foremost. The placenta followed and was immediately removed, in a very offensive state.

The woman bore the operation, which lasted until half-past eight, with great fortitude. The left leg is partially paralysed.

Second Day, 5 *p. m.*—The lochial discharge has been regular. Has had several severe chills succeeded by great heat of the skin, copious diaphoresis, thirst and dryness of the tongue. Is occasionally delirious, passes a great quantity of water from the bladder with difficulty. Bowels have been opened; fomentations have been applied to the abdomen, which is swollen and tender to the touch in the region of the uterus. Pulse frequent, and, except during the chills, full. Seeing a rigor coming on, I advised hot salt, in a woollen stocking, to be applied to the pit of the

stomach and the feet; and a copious draught of catmint tea to be taken. The chill terminated sooner than any which had preceded it.

6 *p. m.*—Pulse full and frequent; great heat of skin; general and profuse sweating; delirium. I took ℥xiv of blood from the arm. It was agreed to apply spirituous fomentations to the abdomen, a poultice of linseed, with solution of the acetate of lead to the pudenda, and to give of the acetite of ammonia ℥ss every two hours.

9 *p. m.*—Symptoms rather improved. She was again bled to ℥xii. Sinapisms to be applied to the feet.

Fifth Day.—Rigors have been less severe; tongue furred, and somewhat yellow. Skin constantly moist; occasional delirium. Bowels confined. Agreed to give three grains of calomel at night; a solution of Epsom salts on the following morning. Sinapisms to the abdomen.

Seventh Day.—The medicine operated well. Tenderness of the abdomen lessened; pulse soft and frequent. Complains of want of sleep; we prescribed the effervescing draught, with forty drops of laudanum.

Eleventh Day.—Continues to improve. Has taken an infusion of hops—agreed to continue it, and to give freely of nourishment.

Fourteenth Day.—Better—is able for the first time to move the left leg, and to move on her

knees from one bed to another. Is allowed the use of animal food.

Seventeenth Day.—Appetite good—strength returning—has set up in bed several times.

Mrs. V. has since entirely recovered.

Doctor Samuel Bard, President of the College of Physicians of New-York, who has inserted the above case in his system of midwifery, introduces it to his readers with the following remarks.

"The rule therefore in all arm cases is, that when the accoucheur is present before or soon after the membranes burst, to attempt the delivery immediately, before the waters shall be fully discharged by introducing the hand and turning the child.—That even after the waters have been discharged for some time, we are cauticusly to make the attempt; but never before quieting the strong action of the womb by bleeding and opium.—But that in all cases after the waters have been long discharged, and the womb is found so strongly contracted about the body of the child as to make it necessary to use considerable force in introducing the hand into the womb, then to mutilate the child and get it away in the easiest manner possible; for in these cases the child is always lost, and the mother's life is necessarily brought into great danger, and has frequently been sacrificed by using too much force in the introduction of the hand to get at the feet. But instead of aban-

doning the case to nature, after taking off the arm and emptying the cavities, we are to persist in cautious efforts to get it away as soon as possible—to accomplish which, the following case, which appears to be a happy mode of assisting nature in her efforts to bring about the evolution described by Dr. Denman, I am persuaded, will frequently be found the most safe and easy.

REMARKS

ON THE

MEANS OF ARRESTING

THE COURSE OF THE BLOOD,

THROUGH THE TIBIAL ARTERIES,

BY ALEX. H. STEVENS, M.D.

In one of the numbers of that very valuable work, the New-England Journal, is an engraved representation of a tourniquet, invented by Dr. Moore of Massachusetts, which appears to me to possess advantages over those commonly employed. As that journal is widely circulated over this country, it is not deemed necessary to give any description of the instrument. My design is rather to speak of it in relation to those very serious cases in which, by reason of a wound, or aneurism, or of ulceration, or laceration of either of the tibial arteries after fractures of the leg, it becomes necessary to interrupt the course of the blood in one or both of these vessels.

I was sent for to see a man who in carrying some glass on a hand-barrow, had fallen under his load, and received a deep cut, extending from

a point about an inch behind and below the internal ankle, to the middle of the inner side of the foot. The blood had been staunched several times by compression, but the bleeding returned as the circulation became stronger. I was in doubt whether it would be best to take up the posterior tibial artery, but concluded to trust to careful compression of the vessel behind the internal ankle; and this proved effectual. The bandage which retained the compresses extended over the whole foot, and these were not removed until they were moistened with pus.

Doctor Physick I am informed has successfully employed an apparatus of his own invention, for compressing the anterior tibial artery. It appears to me, that the tourniquet of Dr. Moore may be employed for the same purpose with great advantage.

In order to compress the anterior tibial artery, I would advise that a short hollowed splint should be laid on the inner and back part of the leg. By this means the pressure is diffused over so large a surface that it is not felt, excepting in a spot immediately over the artery, about as large as the thumb would cover. If I may draw any conclusion from the facility with which I can compress my own anterior tibial artery, that vessel may be commanded more than half way up the leg. The pressure long continued, would no doubt become

painful, but I think it need not be insupportable, and if necessary, it might be greatly moderated by alternately compressing the tibial and the femoral arteries.

The posterior tibial artery is more accessible than the anterior. Yet that surgeon must be far more dexterous than the great majority of those who are entrusted with the care of wounded arteries, who can place a ligature upon this vessel more than three inches above the internal ankle, without including the accompanying nerve. A late number of a Parisian Journal contains a case in which the posterior tibial artery and nerve were included in a ligature for a wound of the former, only a hand's breadth above the internal ankle. Although the nerve was included, its functions were restored.

In a wound of the posterior tibial artery above the middle of the leg, which occurred in this city some years since, that vessel was tied by dividing transversely the fibres of the gastrocnemii muscles notwithstanding which the use of the leg was perfectly restored.

The cursory reflexions contained in this paper lead me to conclude, that the anterior tibial artery may be effectually compressed in all the lower half of the leg, at a greater or less height however according to the size of the limb, and the degree to which it is injected with blood; and

that Dr. Moore's tourniquet, applied in the manner I have suggested is the most convenient means of accomplishing this object:* but in cases where an extensive effusion of blood takes place, and separates the lamina of cellular membrane, the artery cannot be compressed: while on the other hand it is more easily than in the former cases, subjected to a ligature; because when the clots of blood are turned out from this false aneurism, as the French term it, the bleeding mouth may be readily discovered, and the surgeon is not embarrassed by the stricture of the fascia of the leg, that being effectually distended by the effused blood.

And lastly, that this tourniquet together with the splint of which I have suggested the employment, will in like manner effectually arrest the course of the blood, in the posterior tibial artery, when it is not required to make the compression more than three or four inches above the malleolus internus, and where no great effusion of blood in the cellular tissue has taken place; and that on the other hand such effusion will facilitate the application of a ligature, from the use of which neither the necessity of including the posterior tibial nerve, nor the necessity of dividing muscular fibres should deter us.

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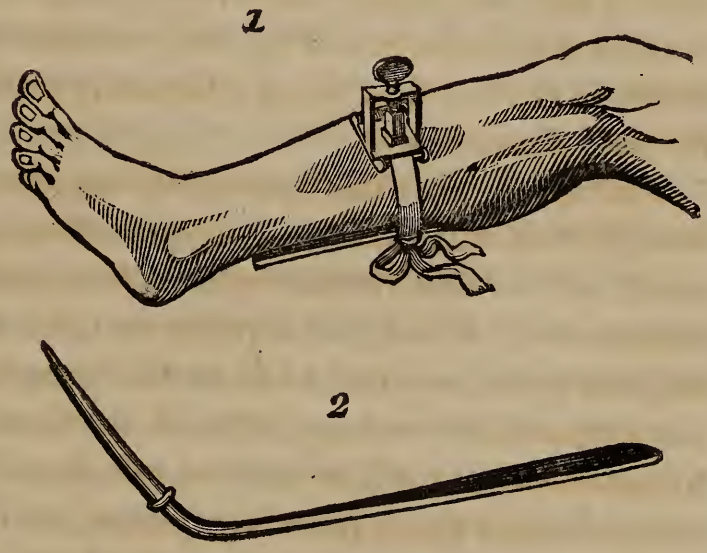
* See figure 1, page 201.

The application of these remarks to cases of aneurism of the tibial arteries is too obvious to require explanation.



REMARKS

ON

FISTULA LACHRYMALIS,

BY ALEX. H. STEVENS, M.D.

THE numerous evils which result from an obstruction of the passage of the tears from the lachrymal sac into the nose, occasioning successively and in different cases, epiphora or lachrymal tumour, and fistula lachrymalis, have long engaged the attention of surgeons, and various modes of cure have been suggested and employed by eminent practitioners within the last century. In England, since the rejection of the proposition of Mr. John Hunter to perforate and remove a portion of the os unguis, the style of Mr. Ware has been pretty generally employed, and notwithstanding the objections to it, arising out of the necessity of retaining it in the ductus ad nasum, for an indefinite length of time, seldom less than a month, and the frequent recurrence of the disease after that treatment, it was nevertheless preferred to all previous methods of cure. In France and I believe on the continent generally, the practice

varies greatly with different occulists, but the seton and the leaden wire are most frequently employed.

Within a short time Mr. Dupuytren the surgeon of the Hotel Dieu has made a great improvement in this branch of opthalmic surgery, by the invention of a new instrument, which almost removes uncertainty from the result of the operation. His operation, which is not difficult of performance, is less painful than the methods generally in use, and it is stated to have succeeded in a proportion of forty-nine cases out of fifty. The instrument, of which we have given a delineation,* consists of two parts; a bent pyramidical piece of iron, approaching in its form to a cylinder, of which the extremity is passed through a small gold tube, exactly fitted to it. The latter is constructed of such dimensions as that when introduced into the ductus ad nasum, its extremities correspond with those of the duct. Its connical form prevents it from sinking too low, so as to irritate or otherwise injure any part of the cavity of the nose. The sac previously divided for the introduction of this canula, is made to heal over it, and the canula remains behind, affording of course a free passage for the tears and removing the cause of the disease.

* See figure 2, page 201. The canula is one inch long and one line and a half in its greatest diameter.

A CASE

OF

CRURAL HERNIA.

BY ALEX. H. STEVENS, M.D.

Doctor Elliot of Harlaem sent to me a poor man whose wife was labouring under strangulated femoral hernia. I found the tumour on the left side, about the size of a pigeon's egg. Venæsection, tobacco injections and the application of ice in a bladder, having been tried without effecting the reduction, I proceeded in presence of Drs. Post and Mott, to relieve the stricture by an operation. The patient was accordingly placed upon a table by candle light. A crucial incision was made over the surface of the tumour, and its investments successively divided. A small quantity of reddish serum escaped from the sac and the intestine was of a chocolate colour. The adhesions of the intestine to the sac having been carefully broken, I employed a common blunt bistoury to divide the stricture and in this part of the operation I found great difficulty: the femoral ligament which was the seat of the stricture could be plainly enough felt, but the intestine had so ex-

panded over the surrounding parts, that I knew not how to remove the strangulation without cutting it. To push an intestine in that state to one side would lacerate it—to introduce a bistoury into the stricture without injury to the gut appeared almost impracticable; for it constantly doubled over the edge. After many trials and great hazard of wounding the gut, I succeeded in getting the end of the instrument a little way within the stricture, and by turning its edge upwards and inwards, I made a slight incision through the border of the femoral ligament. The intestine was next emptied of its contents by gentle pressure, and carefully returned. Doctor Post then pressed upon the abdomen and the wound was filled with serum, which returned into the abdomen when the pressure was removed. The crural ring after its enlargement by the bistoury was judged not to exceed one third of an inch in diameter. The woman recovered rapidly after the operation, the wound soon healed, and a few weeks afterwards she worked as usual, without even wearing a truss.

I do not know if my readers will see in this case any thing more important than an operation imperiously called for and successfully performed, but to myself it has been a source of much reflection, and I hope of some improvement. The best surgical writers dwell chiefly upon the

means of avoiding the obturator artery and the cord while in fact the division of the intestine by the edge or point of the bistoury is much more to be apprehended.

It is the greater risque of cutting the intestine by the incision inwards, as recommended by Ginbernat, Lawrence and others, that renders this practice objectionable, and which renders preferable the incision upwards, or upwards and inwards as suggested by Mr. Astley Cooper. The incision in any direction need not be so extensive as to divide any of the adjacent bloodvessels.

It appears to me that this source of danger may be in a great measure obviated by the use of an instrument, I have had constructed for the purpose of dividing the stricture, and of which a representation is given in the following cut.*

The edge of the instrument extends only one half an inch from the point, and the concave part of it is designed to lie on the hernial tumour, while the point is inserted under the femoral ligament. By slightly elevating the handle, the division of the stricture may be accomplished I think with more ease and less danger of wounding the gut, than by any other means with which I am acquainted.

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* See figure 3, page 209. The length of the instrument is five inches

Dr. Hewson of Philadelphia informed me, that after the division of the stricture in a case of hernia, the state of the intestine was such as to make it doubtful, whether it might be safely returned. *The intestine was covered with cloths wetted with blood-warm water, for the space of an hour*, and the improvement of its appearance at the expiration of that time showed that it might be safely returned, which was accordingly done. This appears to me to be a very excellent plan, which so far as I know has not been recommended by any writer on the subject.

I am induced to deviate somewhat from the strictly clinical plan of this work, in order to contribute to the diffusion of the knowledge of a new mode of curing artificial anus, recently invented by M. Dupuytren of Paris. The instruments he has contrived for the purpose are a forceps,* with separable blades, and† another more complicated (and perhaps not indispensable) instrument for making compression on the open mouths of intestine. The forceps are introduced one blade in each end of the intestine. The blades are then closed by a screw, by which the contiguous parts of the intestinal cylinders are

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* See figure 4. The length of the forceps is seven and a half inches.

† The length of the cushions is three and a half inches. The rings are designed to receive bands to sustain it in situ.

pressed together, the consequence of which is, that they inflame, adhere, and finally ulcerate and are absorbed; by which a communication sufficient for the passage of the fæces is formed, and finally the external opening heals up.* Mr. Charles Bell proposes to accomplish the same end by means of a seton;† a practice successfuly adopted by Dr. Physick many years since.

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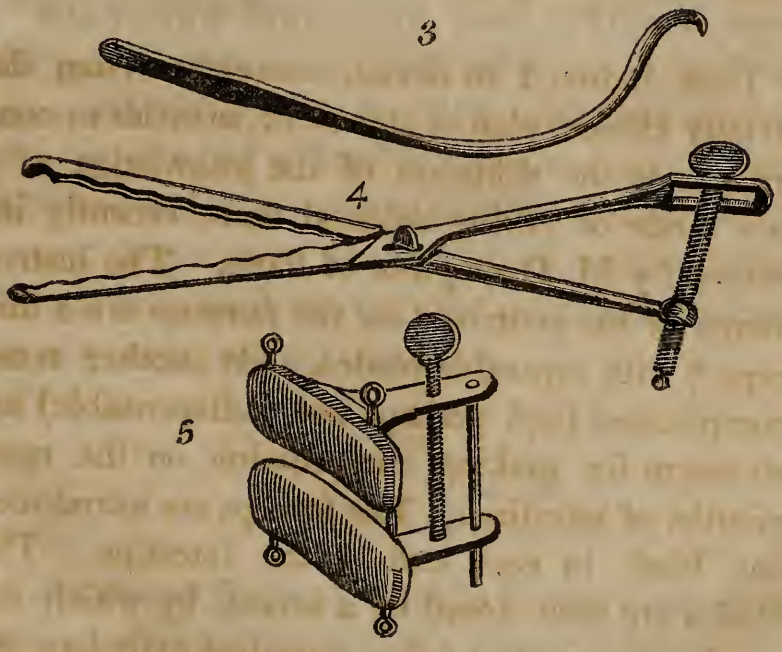
* Dictionaire des Sciences Medicales, Tome. xxi. p. 135.
† Quarterly Reports.



CASES

OF

GONORRHŒA,

CURED BY CUBEBS,

BY ALEX. H. STEVENS, M.D.

CASE I.

MATTHEW HERWOOD, born in Ireland, aged 26 years, carpenter, came into the New-York Hospital, October 15th, 1819. He was put on the use of cubebs three or four days after his admission, and continued to take of it, three desert spoonfuls per day, till the 16th November, when he was dismissed cured. He used no injections, or any other internal remedies.

CASE II.

ANTONIO REAPOS, born in Portugal, aged 26 years, seaman, entered the Hospital September 28th, 1819, with a copious muco-purulent discharge from the urethra. He used a great variety of internal remedies and injections for several

weeks, with but a trifling abatement of the running. About the 25th November he was put on the use of the cubebs, and discharged cured, on the 21st December, 1819. He began with a desert and increased the dose to a table-spoonful ter in die.

CASE III.

PETER OSTRAND, born in Sweden, aged 38 years, entered the Hospital December 28th, with well marked symptoms of clap, of ten days duration. He was ordered a saline cathartic, and directed to take the cubebs, by January the 12th he was entirely cured and dismissed.

P. S. This case yielded quicker and more remarkably than any others in which cubebs has been used.

CASE IV.

JOHN SINCLAIR, born in England, aged 24 years, a labourer, entered the Hospital December 28th, 1819, with a running of six weeks standing, slightly purulent and watery. I gave of the cubebs as in the other cases, a desert spoonful three times a day, and increased the quantity to a large table-spoonful. It first increased the discharge in this

case for eight or ten days, but after that it began to diminish and he was dismissed, perfectly cured, January 28th, 1820.

CASE V.

THOMAS RUSSEL, born in New-York, aged 39 years, a baker, entered the Hospital January 4th, 1820, with clap of three weeks duration. It was purulent, copious and accompanied with extreme pain and scalding in passing his urine. He took a saline purge in the evening of his admission, and on the following morning was put on the use of cubebs. This relieved very considerably by the second day, the ardor urinæ, but increased very much the discharge for a fortnight. It then began to lessen and in four or five days he was dismissed perfectly cured.

CASE VI.

WILLIAM RANKING, born in Ireland, aged 24 years, was admitted December 17th, with a copious discharge of white thick matter, accompanied with much ardor urinæ, and commenced the use of the cubebs on the second day of his admission. He took it four weeks, beginning with the usual

dose, and increased to an ounce per day, without the least abatement of the discharge. Omitted the remedy, gave him an injection, and he went out in four days after using it, nearly or entirely cured.

P. S. None of the above patients complained of any unpleasant effects whatever from the remedy.

The notes of the above cases were drawn out by the House Surgeon, Mr. James C. Townsend (now Dr. Townsend of Oyster Bay.) Here follow two additional cases by Dr. Johnson the House Physician.

CASE VII.

James George, born in Massachusetts, aged 50 years, a seaman, was admitted into the New-York Hospital, December 10th, 1819, labouring under a discharge of purulent matter from the urethra, severe scalding while in the act of passing his urine, distressing chordee at night, and all the symptoms of gonorrhœa. He had contracted the disease a fortnight before his admission and had taken no medicine, nor made any application to the seat of the disease. As the prepuce was much inflamed he was bled, freely purged with salts,

and ordered to confine himself to a vegetable diet. He was directed to bathe the parts frequently in tepid water, and to apply an emollient poultice. The above treatment was continued for three or four weeks without much abatement of the symptoms of his disease: the inflammation was partially subdued, but the scalding, running and chordee remained. He was now ordered ℥ss of powdered cubebs, to be taken in divided doses every day, and all other remedies were omitted. He immediately began to improve, and was in a few days discharged cured, after having taken ℥vi of the medicine.

CASE VIII.

James Becks, born in Maryland, aged 27 years, seaman, was admitted into the New-York Hospital, December 17th, 1819, with symptoms precisely similar to those related in the case of James George, he was treated on the antiphlogistic plan for four weeks without success, when he was directed to take ℥ss of powdered cubebs, in divided doses every day. His symptoms soon began to abate, and he was discharged cured, after having taken ℥vi of the cubebs.

The above cases may be considered as fair examples of the usual effect of the cubebs in go-

norrhœa. It is scarcely necessary to add, that I consider that article as possessing more efficacy in this disease than any other with which I am acquainted.

Although unwilling to believe it a specific, I am unable to point out any stage of the disease in which it does not appear to be generally beneficial. In discharges from the uretha attended with stricture I have not had occasion to try it; neither have I ventured to prescribe it during the presence of high inflammation.

AN

ACCOUNT

OF THE

YELLOW FEVER,

WHICH APPEARED IN VARIOUS PARTS OF THE UNITED STATES, DURING THE SUMMER AND AUTUMN OF 1819.

BY JOHN WATTS, Jr. M.D.

From the year 1805 to 1819, New-York escaped the visitation of yellow fever. Throughout that period, the city and state generally enjoyed an unusual exemption from fatal epidemics; with the exception of the occasional occurrence of spotted fever, of peripneumonia typhodes, of what was denominated the winter fever of 1812 and 13, of whooping cough, dysentery, smallpox, scarlatina, and measles, to a limited extent in this city, and in local districts of the state. During the greater part of this time, the summers were cooler than usual; many of them being much below the ordinary heat of summer, and several of the winters were uncommonly mild and open. A very high degree of heat occurred at different times for a few days only in succes-

sion, in the course of several of the summers, and an extraordinary degree of cold was occasionally experienced for some days together, in the progress of a few of the winters; the absence of the accustomed uniformity of temperature was remarked of both summer and winter.

The year 1819 brought a return of what has been aptly styled an "old-fashioned summer," in reference to its temperature, but unaccompanied by the frequent showers of rain, and storms of thunder and lightning, which characterised many of the summers that intervened from 1790 to 1805. Little rain fell during the winter and autumn of 1818 and 19, and the winter passed with unusually light falls of snow. Early in the summer the earth became remarkably dry, vegetation withered and disappeared, and the wells and springs, in every direction to some distance from the city, were almost drained or exhausted. Early in the month of June, the mercury in Farenheit's thermometer rose above 90°, and seldom descended to summer heat in the course of that month. A higher average temperature marked the month of July, and in the course of August, the mercury rose to 94°, and rarely fell below 80°. Nearly the same elevation of the thermometer continued through the first weeks of September. This range of heat obtained over a great part of the union, and its effects were apparent on the

health of the people, producing in some districts of country, aided by local causes, intermittents, remittents, dysenteries, and in some places, what was called, typhus fever, but which we believe to have been generally bilious febrile complaints.

In this city, and indeed in all the atlantic cities, and through the country generally, there was an unusual mortality, especially among children. The weekly number of deaths in July and August, frequently exceeded one hundred, and during the first weeks of August amounted to one hundred and ten or one hundred and twelve a week; for many weeks together the deaths were almost unprecedented in this city.

In the state of New-Jersey, dysentery and bilious fever prevailed in many places to an alarming extent, and often proved fatal in the course of a few days. In various parts of this state the same diseases appeared, and in some instances destroyed whole families, particularly in the western part of the state. Many of our inhabitants were known to be suffering from high grades of fever, and serious apprehensions were entertained that this city was about to witness another return of the same pestilence, which had so often spread dismay among us. Unfortunately the propriety of these apprehensions was soon evinced by the appearance of a malignant disease in a particular section of the city. Of this we propose to give

a brief history, after furnishing some account of a similar disease that prevailed during the same season in many other cities of the United States: in doing which, we shall avail ourselves not only of the information we have received, but shall lend our efforts to circulate more extensively, extracts from such publications as have appeared on the epidemic of that season; desirous of contributing to the means of preventing the recurrence of this calamity.

About the end of June, or the beginning of July, a malignant fever made its appearance in Boston, of the same character with the disease which had appeared there in 1798 and in 1802; it was confined to the same place, and to equally narrow limits with the yellow fever of those years. The epidemic of 1798, appeared in certain parts of the town, "occurring only in persons who lived or passed much of their time about the town dock, State-street, Liberty square, around Fort Hill, and in some similar situations; that is to say, in parts which are low, and on the eastern and southern borders of the town, though not in every situation of this kind."* It is worthy of remark, that this fever whenever it has occurred in Boston, has made its appearance much earlier in the season, than it has in most of the cities to the

* See New England Journal of Medicine and Surgery.

south.* It has appeared in that town at three different periods, and each of those periods were during summers that were remarkably hot. The section of the town where uniformly it has first appeared is around Fort Hill, and during the last season, "mostly within one small square on the south-eastern side of the Hill;" at first it did not extend over the whole of this square, the longest side of which is stated to be "about twenty-five rods in length."† It gradually spread over a larger district, but did not leave the circle of Fort Hill, nor did any of the subsequent cases appear to have been derived from individuals who had previously sickened—cases of the disease occurred in the persons of those who had visited that section of the town, but in no instance did they communicate it to others. The most diligent examination of the origin of the disease, did not induce the least suspicion of any foreign cause. On this point there appears to be scarcely any difference of opinion; the physicians generally having united in the belief, that the fever of Fort Hill originated in the soil; but what this peculiarity of soil is, we have yet to learn. "It was not a marshy soil. The principal seat of the disease was on the side of a hill, where the decli-

* See North American Review.

† See New-England Journal.

vity is sudden and sharp. There was not any *extraordinary* filth about the spot. The houses of the poor, and the yards about them, were dirty, but not more so, certainly, than the dwellings of the poor in other parts of the town, nor so much so as many houses in the country. The population was not crowded in a remarkable degree. There are extensive flats in the neighbourhood, but not so extensive as in some other places, and these flats are covered with the salt water once in twelve hours. We might however have thought it possible that they furnished the morbific poison, but that the people who were on the side of Purchase-street, nearest the water, and whose situation in other respects was not preferable to that of their neighbours, and whose houses are lower on the hill as well as nearer the flats, were comparatively free from the disease. The inference seems to us inevitable then, that the cause of the disease originated either in the earth, or the water, which belonged to the houses where the sick resided. That it was the earth and not the water, seems to us most probable, from general considerations, which we will not stop to discuss. But that it was the earth, is rendered still more probable from this circumstance, viz. that no cases of the disease occurred in the houses in Hartford-place, where the earth has recently been removed for several

feet from the surface in order to build those houses, although this place is in the square where the disease was most prevalent, and was very near to houses in which it prevailed. It is certainly not improbable that the safety of this place was owing to the removal of the old soil. The water there probably did not differ from the water in the neighbouring wells.

Whatever may be the peculiarity in the soil, which we have referred to, there is reason to believe that the agency of a certain degree of heat with a certain degree of moisture is necessary to bring into activity the poison, which it furnishes. It is only in summer and autumn, and only in certain years that it can be developed."* "At the moment when the first distinctly marked cases occurred on the Hill, every investigation was made to trace them to a foreign source, but in vain. This investigation was prosecuted by persons of different opinions on the general question at issue, but with the same result."† "And it is worthy of remark that in neither of our epidemics has any mode of foreign importation been pointed out, which rested even on plausible ground."‡

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* See New-England Journal for October 1819, on the late fever in Boston.

† Ibid.

‡ See North American Review, No. 27.

It was not until a month had elapsed after the first cases of this disease about Fort Hill, that the ship Ten Brothers arrived from Africa, by way of Martinico She came up to the town of Boston on the 1st of August, having laid three or four days at quarantine. Neither the health officer or the captain suspected the existence of any disease in the vessel; she had been free from sickness for several months, and the captain received his wife, two sons, and his nephew on board at quarantine, and brought them with him to town. The vessel however underwent the usual purification at quarantine, and was then suffered to pass up to the town, notwithstanding it was "stated by people of veracity, that the ship was extremely foul, so as to be offensive to the senses, even when coming up the harbour, and of course before her cargo was started."*

"It does not appear that any examination was made of the state of the lower hold of the ship; and no part of the cargo was removed. Yet this cargo was in a state very far from healthful; and it was matter of common remark that no ship had arrived in our harbour for many years in so foul a state as the Ten Brothers. The interstices between her timbers were filled with corn and coffee,

* See New-England Journal.

in the most putrid state; and the gunny bags and the coffee of her cargo were filled with insects."* The ship "while at sea and before her arrival on quarantine ground, leaked considerably, between two and three hundred strokes an hour; after her arrival at quarantine, she did not leak much, but she was pumped out every night and morning while she lay there."† "The crew of said ship did not assist in unlading her at the wharf, but they all slept on board her, on Sunday night, when she first arrived at the wharf, and on that Sunday and Monday following, they were all taken sick and left the ship, three of them died during that week, after leaving Boston, and two recovered. On Wednesday after the said ship arrived at the wharf, and when unlading, a white scum was discovered on the bilge water in her lower hold, and an unusual stench from the water pumped out of her; putrid corn was also discovered to be scattered in her timbers under her ceiling, but no information of these circumstances was communicated to the Board of Health for several days afterwards.‡"

The greater part of the persons who visited this ship received no injury. About twelve or fifteen

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* North American Review for April, 1820.

† Report of the committee of the Board of Health of Boston.

‡ Ibid.

of those who went on board of her were attacked with a malignant fever, to almost all of whom it proved fatal, but in no instance did it seem to extend itself to the physicians, or to any of the persons in attendance upon the sick, nor does it appear that it occurred in a single person who had not been actually on board the vessel. On this subject the committee of the Board of Health remark that "it was early discovered, that although the disease was very malignant and fatal, yet it was not contagious; the committee have not been informed of a single case, where the disease originated from said ship, has been communicated by the diseased patient."*

Although these two distinct sources of fever have been carefully attended to by the physicians of Boston, yet no difference in the character of the disease has been discovered; in both instances it was allowed to be of local origin, and every case of the disease could be clearly traced to one or other of those causes. "From these two sources arose the disease which occasioned a considerable number of deaths, and gave so much alarm in Boston the last Summer. Many persons were on board the Ten Brothers soon after her arrival; and within a few days, several of them were at-

* Report of the committee of the Board of Health of Boston.

tacked with violent symptoms of fever, which to most of them in a short time proved fatal. These persons, as well as some of those who received the disease on Fort Hill, were sick in various parts of the town and in other towns, but they did not communicate the disease to others."* In a subsequent place the same writer remarks, "from all these circumstances, it is evident that the disease which arose from the ship Ten Brothers, was as purely local in its origin, as those upon Fort Hill. And as the cases from neither source possessed any contagious properties, so they could not themselves have arisen from contagion."†

It is particularly deserving of attention that the fever of Fort Hill occurred a month previous to the arrival of the ship Ten Brothers, was confined exclusively to a small spot of ground, and was not extended by personal communication with the sick; and, that the subsequent disease of the ship Ten Brothers was dispersed throughout the town in the persons of many of those who had contracted it on board of her, and that those persons did not furnish a single unequivocal instance of its being propagated by contagion.

With respect to the disease at Fort Hill it is stated by one of the most distinguished physicians

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* See North American Review, No. 27. for April 1820.
† Ibid.

of Boston, that "the most remarkable circumstance about it was its tendency to a fatal termination. At such termination it arrived in the great majority of cases, and under different modes of treatment, although the disease presented various aspects at its commencement. Likewise, in most cases, death was preceded for some hours by a great failure, and sometimes an entire loss of the pulse at the wrist, while the patient felt easy and even comfortable, or else was comatose. Some cases were marked by severe rigors and great pain, with hard and full pulse; some by coma; some by black vomit; and in some instances all these symptoms occurred in the same case. Perfect stupor, resembling intoxication, great heaviness, with suffusion of the eyes, extreme restlessness, spontaneous hemorrhages, convulsions, and very irritable stomach with vomiting of bile, as also yellowness of the skin and of the tunica conjunctiva were occasionally noticed. Most of the fatal cases terminated on, or before the fifth day; but some persons, in the same vicinity, with the worst cases, died after a much longer time, one even in the seventh week of his disease. These longer cases and some of the shorter ones had at first no other characteristics than are common to our autumnal fevers; nor did every case show any others to the last."

"The strength of the poison producing the disease was shown more by its fatal effects, than by the violence of the first symptoms of the disease; at least, this is true in respect to many of the cases. In some persons therefore the disease was neglected as unimportant until fatal symptoms showed themselves. In others the attack was formidable and arrested instant attention." The number of cases of this disease which occurred in the town of Boston, from the two sources alluded to, is supposed to be about sixty.

Early in the month of July, reports were made to the Board of Health of Philadelphia, of a number of cases of malignant fever; the first five or six of which were traced to the influence of poisonous effluvia, arising from a large mass of putrefactive substances that had been accumulating before the doors, and in the cellars of the houses, occupied by the persons who were first attacked with the disease. On the removal of the nuisances, the extension of the fever was immediately arrested. It afterwards appeared in other parts of the city, and the local origin of it, was as clearly traced, in several instances, to uncleanliness and foul air; and the spreading of the disease was as effectually prevented by the removal of the obnoxious materials. In regard to the first cases which were reported, it is stated that "the remote causes of these cases of malignant fever may be rationally

traced to the pestilential exhalations to which the subjects of them had been for some time exposed; derived from a collection of animal and vegetable matters which Reeves had been accumulating for several months before his door, to manure some land which he owned in New-Jersey; and from a quantity of decayed vegetables which he had under his house, and had been left there by the country people, who came to market; and from a similar mass in the cellar of William Wray, and a narrow alley running parallel with his house, and to the north of it." "Prompt measures were taken by the Board of Health to purify the houses. More than a cart load of an offensive collection was taken from Wray's cellar, and of putrid vegetables from under Reeves' house; and every part of both houses was well white-washed, the families were removed and kept away several weeks. The offensive alley north of their houses was washed by a fire engine."* Some of the cases which occurred in other parts of the city were also distinctly traced to similar causes. On examining a house in South Water-street, where three cases were reported to have occurred, both the house and yard "were found to be extremely filthy; three or four cart-loads of putrefactive sub-

* Vide American Medical Recorder.

stances were removed," and in another in Jones' Alley "two cart-loads of putrefactive substances were removed from the cellar."* The vigilance of the Board of Health in removing every cause of impurity, and guarding against the introduction of materials subject to decomposition, effectually arrested the progress of the fever, and soon extinguished it altogether. It does not appear that it was extended by contagion or personal communication with the sick; for although fifteen or twenty persons are supposed to have had the disease in different parts of the city, it entirely disappeared in the midst of the hot weather, under the measures of precaution and purification adopted by the Board of Health. A committee of that Board in reply to the inquiries, authorised by the Board of Health of New-York, respecting the malignant fever in Philadelphia, stated that "all the sick mentioned were resident in the city, and the disease has not been traced to any vessel or any stranger arriving from abroad in the place." This declaration must effectually defeat the insinuation, that it had arisen in Philadelphia in consequence of persons having frequently eluded the quarantine regulations of this port, and clandestinely entered the city of Philadelphia.

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* Vide American Medical Recorder.

About five and twenty or thirty cases of the yellow fever, it is supposed, have occurred this season in two places of the city of Philadelphia, at the distance of several squares from each other —the first cases of it appeared in and about Water-street, near Race-street, and the remainder in the vicinity of Walnut-street wharf. We shall look to the physicians of Philadelphia with some solicitude for an account of the origin, nature, and extent of this fever; in the meantime we shall here insert an extract from the answer of the Board of Health of Philadelphia, dated August 17th, 1820, to a letter of the preceding day from the Board of Health of New-York. " There is one fact connected with the disease that exhibits clearly its local situation. A cooper and four of his associates went from a healthy neighbourhood, and worked one day on Walnut-street wharf. All five were taken ill a few days after with similar symptoms, but of different intensity. Mr. Brooks, the master, was ill one day only, two others were unwell two days, the remaining two are still unwell, though one is convalescent.

There is also, two very important circumstances in relation to the disease, and which inspires a well grounded hope that the measures we have adopted will prove effectual in arresting its further progress.

The first is, that every case that has occurred, is satisfactorily proven to have originated in the infected district, now barricaded up; the second, that no instance of the disease being communicated by the sick in other parts of the city, is known." In a report of the 15th September, the Board of Health of Philadelphia state that "they have delayed a public communication of the existence of malignant fever within the city, until it should be apparent to them that its character was not of that sporadic nature under which it frequently appears in seasons similar to the present."

Early in the month of July, 1819, a malignant fever made its appearance, principally among farmers, in the immediate vicinity of Baltimore, several of whom, it is said, had not been in the city for a month. They exhibited the worst forms of yellow fever, marked by black vomit and hemorrhages. Towards the close of this month several persons were taken sick at Smith's Dock, nearly two miles distant from the first place, to most of whom it proved fatal; these cases also were marked with black vomit and hemorrhages. The wharf at Smith's Dock is reported to be made of perishable materials, "faced with timber and then filled in with logs, and the various offals of a large city, with a thin stratum of gravel on the surface. In some instances, chips and shavings of wood

constitute the principal material." "Some of the stores on this wharf, have wet cellars, others planked over, with an interval of from one to two feet between the plank and the mud. This was the state of several of the stores, the tenants of which died. We think this circumstance especially worthy of being noted, because Bowley's Wharf, which was placed apparently under similar circumstances, and from which many persons died in the epidemic of 1800, was now healthy. This mortality, at that time, was attributed to the bad state of the cellars, in consequence of which, in most of the stores, they were filled up with fresh earth, and paved with bricks. There was but one case which occurred on this wharf during the Summer of 1819."* The condition of the adjoining wharf also was supposed to contribute largely to the deleterious effluvia of that neighbourhood. "This wharf is faced with timber, and for a distance of ten or twelve feet along its whole length, it is filled with mud dug from the neighbouring dock. The remainder of the wharf, which is large, is filled with shavings, dirt collected from the streets, &c."† This part of the city was also particularly offensive from the ex-

* Vide a paper by Dr. Revere in American Medical Recorder on the fever of Baltimore in 1819.

† Ibid.

istence of a variety of nuisances in the streets; which were removed by the Board of Health; and such other measures were taken, as were calculated to purify the air. By these means, together with the removal of most of the inhabitants from this quarter, the disease disappeared, and the public agitation had subsided for eight or ten days, when the disease again re-appeared, but in another and distant quarter, and with increased virulence. At this time it was that it appeared at "Fells Point in Wolfe-street. This street runs parallel to the water, and is artificially constructed. That part where the disease first discovered itself is unpaved; in fact it seems to have been almost exclusively formed of shavings without even a stratum of earth upon them." "Soon after the epidemic had begun to spread in this part of the town, about the 20th of August, in consequence of a very disagreeable odour arising from this mass of putrefying shavings, it was complained of as a nuisance, when the police ordered it to be covered with fresh earth. Three labourers, all of whom lived in a healthy part of the town, were employed with their carts for this purpose. In the course of a few days all these men were seized with the prevailing disease, and they all died."* The heat of the weather, which now became ex-

* Fever in Baltimore by Dr. Revere.

tremely oppressive, the habits of the people of this offensive district, which was the resort of sailors and their associates, and the exposed situation of the shipping to the concentrated effluvia of the place, soon caused the disease to spread, and with an alarming mortality, among the sailors and the inhabitants, while the remaining "four fifths of the city was at that time more healthy than it has been at the same season for several years."* Many instances occurred of persons being taken sick after only passing through, or going but for a short time into the infected district; and it was remarked that there was scarcely an instance of a person visiting that part of the city at night, without undergoing an attack of the disease, while during the day it might be visited with comparative impunity.

Dr. Reese observes, that "several Physicians who had been attending patients through the whole course of the fever, in the very centre of infection, in the day time, were exempted from the malady, but by visiting once in the night they became diseased."†

It has been remarked of epidemics, that they are usually more violent or fatal at the beginning, and that they become milder, by an apparent ex-

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* Fever in Baltimore by Dr. Revere.

† Vide Observations on the Epidemic of 1819, in a part of Baltimore, by David M. Reese, M.D.

penditure of virulence towards their close; but this was not the case in Baltimore, except, in respect to the number of new cases.

Dr. Revere says, that "the severity of the disease was in no degree mitigated towards its termination, but on the contrary, its virulence was increased," and the Board of Health in their report of the 17th of October observe, that "the great transition in the weather, while it may have extinguished the source of disease, has operated fatally to the sick, and excited disease in those already predisposed, so as to indicate precaution against returning before the total cessation of cases, to want of which, some have already fallen victims, and many have suffered."

With regard to the nature of the epidemic, the faculty of medicine of Baltimore have unanimously declared, that no circumstance had occurred to excite a suspicion, that the disease was contagious. It has been already remarked, that it first appeared about two miles from the city, was altogether confined to a clay soil, and low swampy ground, abundantly productive of marsh miasmata, where intermittent and the various grades of bilious remittent fevers have always prevailed, and where, it is asserted by medical men, some cases of yellow fever occur almost every season, but which have never yet extended

beyond the marshy situations. Smith's wharf, where it next appeared, is at least two miles distant. There is but little intercourse between these two places, and no suspicion was entertained of the disease having been derived from the quarter where it first appeared. "Almost every individual who remained in this part of the city was affected by the disease." There were many instances of persons taking the disease at Smith's wharf, and being removed to other parts of the city, without in any instance communicating it to their friends, or their numerous attendants. So forcible was the evidence of its non-contagious character, that even popular opinion, slow as it is to acquiesce in the truth of a doctrine of this nature, ascribed it to the structure and filthy condition of the wharves where it prevailed. Nor did the inhabitants at Fells point where it next appeared, about a mile distant from the latter place, trace it to, or suspect that it was derived from Smith's wharf; for at Fell's point, the sources of deleterious miasmata were too palpable to escape even common observation. "Not only ware-houses were erected on new made land, filled up with these noxious materials, but whole streets of dwelling houses. This spot is annually subject to intermittent and remittent fevers. The very moment I am writing this, (last of Feb. 1820)

the weather having been uncommonly warm for a few days, intermittents begin to prevail."*

The District Medical society of Maryland, in their communication to the Common Council of Baltimore, observe that "the malignant fever, which prevailed at Smith's wharf, and at Fells point, in the summer of 1819, in the opinion of this society, is to be ascribed to the decomposition of vegetable matters. This opinion is supported by the following facts—The alley back of Smith's wharf has been filled up with dock mud, shavings, and other putrescent materials. The same remarks will apply to the construction of Smith's wharf generally, and also to those parts of the point where the fever first appeared. It is highly probable that the logs composing the wharves in many places have contributed by their decomposition, to the production of the noxious cause. It is notorious to all who have made any observations on this subject, that the disease raged with more violence along the course of the wharves, and the made ground in their vicinity, than in places remote. A recent inspection of Kerr's wharf, and other wharves, has discovered, that from the decay of the facings of the wharf,

* Vide Account of the Fever, &c. in Baltimore in 1819, by J. Revere, M.D. in American Medical Recorder for April, 1820.

the water has been admitted so as to have formed subterraneous pools. These may have found communications with the cellars in the made ground in the vicinity, and may have penetrated to the piles constituting the foundation of the neighbouring houses, and thus have been led up into cellars, which may be the deposits of various putrescible articles. The immense mass of materials just adverted to, are buried from the eye of a superficial observer. These materials have existed, and others have been accumulating for many years. Why have they remained so long dormant? so long innoxious? While the heat of our summer remained moderate, the destructive principle was only partially evolved; but when the intense heat of the last summer penetrated the apparently inoffensive earthy covering, and reached the subjacent mass of perishable materials, they were subjected to a temperature to which they were unaccustomed, a temperature which gave origin to the cause of the disease." This respectable association further add, that "the doctrine of contagion and importation receive no countenance from this society."

A large number of patients in all the different stages of yellow fever, were admitted into the hospital, without exciting a suspicion of contagion. "Such was the conviction of its non-contagious nature, not only in the minds of the

faculty, but the other citizens, that the hospital was thronged, particularly on Sundays, by people, some of whom came to visit their friends, and many who came merely to witness the effects of a disease which had excited so much horror."* And Dr. Reese† in his observations on the epidemic of 1819 at Baltimore, in adverting to the above facts, remarks, "yet in no instance was a physician, nurse, attendant, or any visiter diseased;" and in speaking of the extent of the tainted district says, that "it was as easy to separate the healthy from the diseased portion of the point, as it would be to stretch a line across a room, so circumscribed was the extent of the noxious poison."

Many hundreds of the poor were induced to leave the unhealthy district, and to repair to the neighbouring rope-walks, which were prepared for their reception; and when these became occupied so as to preclude the admission of more, tents were pitched in the vicinity. Here it is supposed that more than a thousand persons were furnished with subsistence, consequently they must have been of that description of people,

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* Vide Dr. Revere's Account of the Epidemic of Baltimore in 1819, in American Medical Recorder.

† Observations on the Epidemic of 1819, &c. by David M. Reese, M.D. Baltimore.

among whom, disease is very apt to be engendered, and where contagion, if it existed, would spread with the utmost rapidity. It does not however appear, that a single instance occurred of its spreading in this manner. Dr. Reese observes, that "the health of the inhabitants of the encampment was truly remarkable; for during the whole time of their continuance in the rope-walks, only six persons died there; five others who contracted the disease at the point, but became affected after their removal to the encampment, were carried to the hospital, and died there, making in all only eleven deaths in the whole number who were collected from the diseased district."

It was not considered safe to return to the infected district until near the beginning of November. We have no means of determining the precise number of cases which occurred during the prevalence of the epidemic, as the physicians, unwilling to excite public alarm, reported only the more aggravated cases. From the account of Dr. Revere, it appears that "from the 1st to the 30th September inclusive, besides other diseases, there were six hundred and forty cases of yellow fever reported to the Board of Health, of whom two hundred and forty-two died. The following facts, which are selected from a great number possessing nearly the same common cha-

racter, will show to what an extent the atmosphere of this part of the city was at one time impregnated with the specific cause of yellow fever. The ship Ceres sailed for Liverpool on the 25th September; among the passengers were a gentleman, his wife and daughter; the latter a very interesting young lady about twenty years of age, who had lived in a very healthy spot, in the westerly part of the city, rode to Wirgman's wharf for the purpose of embarking. The ship was already under way, and the boat waiting expressly for her. She only waited to get from the carriage to the boat, and was then rowed off. This was the only time she had been at the point during the prevalence of the fever. The third day after she sailed, she was seized with the usual symptoms of yellow fever, and died with black vomit, hemorrhage, &c. There were several others who died in this ship, but they had been frequently in the unhealthy part of the town."

In concluding this part of our paper, we cannot refrain from inserting the very excellent description of some of the forms of yellow fever in the words of Dr. Revere. "The symptoms by which this disease was characterised, varied very essentially in different individuals; nor could this be satisfactorily accounted for from the constitution of the patient, or the circumstances under which he was placed. Sometimes the first signs

were pain in the head, back, and limbs, and an inflamed appearance of the eye. At others the disease was ushered in by a severe cold fit, which would continue for several hours; this would be succeeded by a violent fever, in which the headach and pains in the back and limbs would be excessive, the skin hot and burning, the countenance deeply suffused with blood, and the pulse hard and bounding. The fever would often continue without any intermission, and sometimes without any perceptible remission until the fifth or seventh day, when the pulse would sink, the surface become cold, deadly nausea would take place, followed by coffee ground vomiting, hemorrhage, and death. The yellowness of the skin often came on in this stage of the disease, and was sometimes of so deep a hue, as to approach a black. In other instances, nearly the reverse of this would take place. In the early stages of the disease, there would be slight headach and pain in the back, attended with great prostration of muscular strength, preternatural coldness, and clamminess of the surface, and sunken pulse. In some instances, these symptoms proceeded to such an extent, that the powers of life were completely prostrated, and the patient died in a few hours. In one case a sailor was walking the deck without any complaint; he suddenly fell down. When the physician who was

immediately sent for, arrived, the senses remained, and the respiration continued, but the pulsation had ceased at the wrists, the face was hippocratic, and the man died almost immediately. If the patient did not die in this stage, which was often the case, on the second or third day reaction would take place, and the state of the system would be completely reversed. The pulse would rise, the skin became hot, and repeated venesection became necessary. In some instances, there would be neither in the complaints of the patient, or other symptoms, any thing which would lead one to suppose that any alarming morbid affection existed, yet the patient would tell with astonishing precision, the hour, and almost minute, when he was seized; and such cases frequently terminated fatally. In one instance, the patient was in a quiet refreshing sleep, the skin cool, and the pulse not seeming to indicate danger. The patient being roused and questioned, answered rationally, that he had been seized at a certain hour two days before, with headach and slight indisposition, but that he was now free from any complaint, excepting he was rather sleepy. Yet this man was passing his fæces and urine involuntarily, and died comatose within twelve hours. In other cases, a train of symptoms so entirely opposite would ensue, that one could hardly recognize the most remote resemblance in a single feature

of the disease; e. g. a man walked out to the hospital, a distance of more than a mile, and after he was left there by his friends, insisted that he had not a complaint. But he was delirious when he arrived, and soon became so troublesome that it was necessary to apply the straight waist-coat, which it was not found prudent to remove until within a short time before his death, which happened within thirty hours after he was admitted. The bowels were generally sluggish, but by no means insensible to the operation of cathartic medicine. There were no distinct remissions or exacerbations of fever. After the first attack there was generally an uninterrupted febrile state, until a complete intermission took place. This was sometimes the case at the end of twenty-four hours, but at others it continued for four or five days. In many instances the sensations of the patient were in a very remarkable degree disordered. The skin would feel cool to a by-stander, while the patient complained of a distressing sensation of heat, and vice versa. In almost every case the patient complained of heat and pain about the scrobiculus cordis, attended with such extreme sensibility, that the slightest pressure occasioned acute pain. This preternatural sensibility sometimes extended over the whole surface of the body, so that in one instance the patient, a man, complained seriously of the

pain caused by the pressure of the finger of the physician on the wrist, in feeling the pulse.

In those parts which had undergone the process of vesication, the soreness and pain was most exquisite. I saw a sailor on whom the common pains of the body would have made no impression, absolutely weep from the pain he endured in dressing his blister. Hemorrhages were most frequently from the mouth. The blood did not seem to be poured out from any spot, but to ooze from the whole internal surface of the mouth and gums. Bleeding sometimes took place from the nose, ears, stomach and bowels, and in one case from the eyes. The blood was sometimes discharged in large quantities, particularly from the bowels, attended with tenesmus. Hemorrhage was always an alarming symptom, but not necessarily fatal. In one instance there was hemorrhage from the nose, ears and stomach, preceded by black vomit, yet the patient, a boy, recovered. Black vomit took place generally on the fifth or seventh day, and was a most dangerous symptom. It was sometimes however the first symptom of the disease, as in the following case: a boy had fallen into the hold of a ship, by which both the thigh bones were fractured. The bones had united and the boy was comparatively well. Soon after eating his breakfast, in apparent health, he was seized with deadly nausea, which terminated

in black vomit; he died on the fourth day. After the beginning of October, as has been already stated, the number of new cases and deaths essentially diminished, yet in those who were seized after this time, the disease was still more malignant and fatal than at its commencement. One gentleman assured me, that of the twenty-three last cases which were under his care, nineteen died in the following manner; after two or three days of smart fever, a complete intermission would take place, the patient would seem convalescent, his appetite would return, and every thing appear most flattering; when suddenly, and without any apparent reason, he would be seized with nausea, or rather a most distressing sensation of weight about the pit of the stomach, soon after which, black vomit, or hemorrhage would ensue, which were the harbingers of death."

A similar epidemic also appeared in Charleston, South Carolina. We regret not being able to mark the period of its commencement. The number of deaths which it caused was about one hundred and eighty, it was less fatal than in 1817. The following brief and distinct account of it has been obligingly communicated by that very intelligent physician, Dr. J. M. Campbell—he observes "that it is the same disease which has occurred here in previous seasons, and is known and distinguished by the name of yellow or stran-

gers' fever. The universal impression is that it arises entirely from local causes;—that a state of atmosphere capable of producing it prevails to a certain degree every summer, and that the disease is always extensive when the early part of the season is very wet, followed by great heat of weather. It makes its appearance in the neighbourhood of the wharves and confined parts of the city, after which it extends itself without following any particular tract. The subjects of it are strangers and children, there being no instance of a native adult having the disease, unless he shall have estranged his constitution by several years absence. It appears necessary to live in the yellow fever atmosphere to be exempt, for persons who reside but a short distance from the city are liable to the disease on coming into town. Europeans and northern men have the fever in a more violent degree, and the chances of recovery are less, than in those accustomed to a warm climate. Strangers who go to Sullivan's Island as the only place of security are perfectly exempt, although many of them are in crowded boarding houses, and nurse, without fear or injury, those who have contracted the disease by staying too long in Charleston previously to their retiring to the Island. A severe frost always puts an end to the disease, while cool weather increases it. In the commencement of the season the recoveries are less frequent

than at the close. The symptoms of this disease correspond with what is related by medical writers. The two symptoms which most universally prevail, and which may in some measure be considered as characteristic of the disease, are a peculiar pain and burning at the pit of the stomach, and the evacuations of a dark greenish colour, having particles of the same colour swimming on the top. The absence of bile from the evacuations has been noticed as a very unfavourable symptom." "Dr. Shecut in his essay on the yellow fever of 1817, has added to the title page the following, "Let it be remembered, that the yellow fever, which is the subject of this essay, is that which is the proper endemic of the city of Charleston."

It was matter of common observation, that the country generally, for some distance from Charleston, was unusually sickly during the summer and autumn of 1819. Dr. Irvine, in his treatise on the yellow fever of that season, states that, in the course of twenty years experience, he has invariably noticed the great prevalence of disease, or the occurrence of violent forms of fever, in the country at large, at those periods, when the yellow fever has appeared in the city of Charleston; and that the latter, has been proportioned to the extent or severity of the diseases of those seasons throughout the country. With respect to the

origin of the yellow fever he observes, "It is easy to perceive, that if to an atmosphere, which has already, from various causes, become so deleterious, as to occasion general unhealthiness, be superadded, all those effluvia which from foul streets, sewers, &c. are constantly contaminating the air of cities, a malignant disease must necessarily be produced; and accordingly under such circumstances, the yellow fever has invariably broken out, with greater or less violence, in proportion to the sickliness of the country, or season generally."* The difference of the type of the fever of the town and country, he supposes to be owing to a difference of local circumstances, the latter being referable to a marshy and vegetable origin, while the former, is aggravated and changed by the addition of animal effluvia connected with the situation of the place, and the density of its population. Dr. Irvine is an able advocate of the domestic origin of yellow fever, but believes that it never occurs, excepting in those situations which are exposed to the influence of tide water. We shall not advert to the frequent instances of the yellow fever having appeared on board of vessels at sea, and at many places in the Mediterranean not subjected to the influence of the tides—it is only

* See Irvine's treatise on the yellow fever of Charleston of 1819.

necessary to look to the banks of the Mississippi, for a refutation of this opinion. He asserts that Charleston has always been healthy "when the country around it has continued free from any remarkable mortality;" and that in such seasons a person from Europe may safely pass the summer in that city. Children from the age of one to twelve years, are equally with strangers, exposed to the disease, and they can only obtain security against it, if they remain there, by passing through what is denominated, a yellow fever season. Dr. Irvine thinks "that there is some quality in the air in the neighbourhood of the sea, and of its tide waters, which is necessary to the spread and action of the infection;" and that a season *generally sickly is especially* necessary to its appearance.

"I have mentioned that the effluvia arising from the concentrated population of a city, are not sufficient of themselves, to create the latter disease, (yellow fever) and that it is only when they come in contact with an unusual mass of miasmata in the general atmosphere, that the yellow fever is produced. That therefore the country must be unhealthy before the town becomes so. When the great body of the air is loaded with those deleterious exhalations which occasion bilious remittents, the superaddition of the various noxious emanations proceeding from an ill-cleansed city, necessa-

rily engenders a malignant disease."* Contending altogether for the local origin and non-contagious nature of the yellow fever, he advocates all those improvements which are calculated to purify the air, and cleanse the surface of the town; such as paving the streets, filling up their inequalities and altering them so that by means of side drains, running on the surface of the ground to the waters edge, all offensive collections may be carried off by the descent and washing of the streets. He particularly condemns the present subterraneous sewers, being covered with grates through which their effluvia pass, and also frequently opened and their contents strewed on the surface, "from which they are never removed, so that the soil of our streets becomes a compost of every thing deleterious." He likewise condemns the "present custom of digging subterraneous cellars, which become receptacles for foul air, and often from springs or rains, form bodies of stagnant water. The ground on which our city stands, is of *too low and springy* a nature, to admit of these substructions."

Dr. Irvine is of opinion that persons in the climate of Charleston "can never have the disease but once," an opinion which the sad experience

* See Irvine's treatise on the yellow fever.

of many persons in this and other cities of the United States has already abundantly refuted. He observes, however, "that strangers are frequently seized in the early part of the season, with bilious remitting and intermitting fevers, and though when they recover from these, they are less likely to have the yellow fever, they are still liable to take it, by improper exposure or excitement of the system." He doubts if a second attack of yellow fever ever took place in an adult, and believes that when this has been supposed to occur, the bilious remittent has been mistaken for the yellow fever, and consequently that these two diseases are perfectly distinct. The latter he believes to consist of but one paroxysm, having no remissions or intermissions, and never terminating by perspiration or critical discharges. We have noticed these opinions of Dr. Irvine, because we believe them to be somewhat peculiar for an advocate "of the domestic ingeneration of yellow fever" to entertain. It has heretofore been the privilege of the contagionists alone, when at a loss to explain away the embarrasments of their doctrine, to refer them all to a mistake in regard to the disease itself.

Dr. Irvine has taken a view of the disease, which we cannot help believing to be extremely imperfect, nor can we forbear pointing out the insufficiency, we had almost said, the entire want

of proof of some of his pathological opinions. In the first place, we are compelled to notice the fallacy of his reasoning. From the useful researches of Dr. Physic, which have *pointed* to the true nature of the matter of black vomit, Dr. Irvine argues, that the yellow fever is a totally distinct disease from bilious fever. This, however, is a sweeping and gratuitous assumption, resting upon the explanation of a single symptom, frequently ascribed to the presence of bilious matter in the stomach; but which according to experiments and the dissections of Dr. Physic, is probably owing to a morbid derangement of function in the extreme bloodvessels of the stomach and intestines; or to an effusion of blood, changed by its combination with the natural and vitiated contents of those cavities. If this fact were established, it surely would not determine the true nature of the disease. By parity of reasoning, we might as fairly infer, that jaundice was not an hepatic affection, and the yellowness of the skin was not owing to bile, because the dejections indicate the absence of that fluid. Nor was it necessary that the matter of black vomit should be found in the liver or gall bladder, to prove the connexion of that symptom with the liver: nor does it follow, because no fluid could be obtained by an artificial combination out of the stomach resembling that of black vomit, that it could not

be produced in the living stomach, and in connexion too with the presence of bile in that organ, and be so acted upon by the gastric juice, and the functions of vitality, as to elude all the ordinary tests of bile. Is it not allowed that when vomiting occurs early in the disease, or when emetics are promptly administered, that large quantities of bilious matter, and frequently pure bile is thrown off? is it a satisfactory explanation of this phenomenon, that it is solely and necessarily caused by the violent efforts to vomit, emulging the biliary vessels? Why then does not bile appear in the matter of black vomit, since it can so easily find its way into the stomach on the first vomiting? If the bilious matter, which "is probably always more or less accumulated in the first passages,"* is not removed by early vomiting, but remains in the stomach and bowels for a few days, until the accession of the symptom of black vomit, why does it elude the ordinary tests of bile, and escape detection under the character of the matter of black vomit?

But admitting, for the sake of the argument, as we are disposed to do from belief, that the coffee coloured matter of black vomit, is not composed of bile, does it prove that the bile or liver, has

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* See Irvine's Treatise on the Yellow Fever of Charleston.

nothing to do with the yellow fever? Are not some of the most strongly marked bilious affections, associated with a perverted, or suspended condition of the natural function of the liver? and does not the congested state of that organ, sometimes so far transcend the excitement necessary to an increased secretion of bile, that little or no secretion of that fluid takes place, and the liver is found after death to be of a pale or other unnatural colour, analogous to what has been often observed in diseases of the kidnies; and what is also frequently remarked of a number of febrile affections, in which the function of perspiration is completely suspended? Could we legitimately infer because perspiration is altogether wanting in the latter affections, that they never have any connexion with the functions of the skin; and will not the entire suspension of all the secretions, which is said to be observed in yellow fever, from the suddenness of their occurrence, account for the various congestions which seem to take place in that disease?

Do not all the symptoms warrant us in the belief that it is often a disease of congestion, accompanied by its corresponding degree of excitement, sometimes rising far above, and at other times sinking much below, the ordinary excitement of health, and bringing different parts of the system into associate and corresponding

states of congestion? Does not an extraordinary degree of muscular energy take place sometimes from the irritation and excitement of the brain; and at other times a prostration of the powers of life, and a state of extreme collapse of the system, from the violent operation of the same cause; and have not these, and similar effects, been observed in connexion with slight organic affection, or mere derangement of the function of the liver? Has not death ensued after all the symptoms of hepatic cholic, and the liver been found on examination to be free from any diseased structure, and to have been merely disturbed in its function? But whatever may be the cause of this symptom, it is not necessary that it should be owing to bile, to confirm the doctrine of yellow fever being a bilious complaint, or an aggravated form of bilious remittent fever; and if it were owing to bile, still it must oftentimes be absent, since there is a very large proportion of cases, in which, this symptom has never occurred.

We cannot subscribe to the doctrinal language which treats of the "matter of black vomit, as well as the dark matters dejected from the bowels," as "*secretions* from the inflamed blood-vessels of the stomach and intestines." Too little is known of the nature of secretion to authorise the frequent comparisons of such morbid effects, with the functions of health. We may

imagine the existence of a morbid *sanguineous secretion* in the stomach, or to speak more correctly, of such engorgement and relaxation of the vessels, as may allow of effusions of blood, which may colour the discharges from the stomach and intestines; and that something analogous to it may exist in large portions of the sanguiferous system; and from its effect on the small vessels of the surface, give rise to hemorrhages, petechiæ, and to a dark, dirty and yellow colour of the skin. But, that the deep shades of yellow, which so often occur over the whole surface of yellow fever patients, with the similar suffusion of the eyes, is altogether owing to the same cause, is not in our opinion so satisfactorily established, as Dr. Irvine appears to believe.

Is not the yellow colour of the skin in icteric affections, oftentimes ascribed to slight functional derangement of the liver, produced by ardent spirits, violent exercise, hot weather, the depressing passions of the mind, and by anger, and jealousy; or supposed to arise from obstructions of the gall duct by calculus, inspissated bile, tumors, spasms, and a variety of dyspeptic affections, which have turned the course of the bile from the bowels, to the surface of the body? and is it not probable, that when the secretion of the liver is suspended, and the passage of certain matters from the system through that organ is

obstructed, that these matters may seek their exit through the skin and the kidnies, where they may, and in yellow fever do actually, meet with a corresponding state of suspended secretion? and if the pyloric orifice of the stomach has been found closed in yellow fever independent of organic, or mechanical obstruction, may not a similar contraction of the gall duct occur from the influence of the same, or some other latent cause, and occasion the yellow appearance of the skin without any structural disease of the liver and its appendages, or any unusual appearance of the bile? The fact, therefore, of the dissections which have been made of some yellow fever subjects, not having discovered any thing unusual in the hepatic system, does not warrant us in the conclusion, that the secretion of bile, or the function of the liver, has nothing to do with the production of any of the symptoms of yellow fever. Suspended secretion of bile we believe is oftentimes attendant upon, and perhaps productive of the most severe and dangerous forms of disease. The presence of that peculiar fætor which is supposed to be derived from the liver, has long been noted as a favourable symptom, and the appearance of bile in the dejections of the sick, under a variety of diseases, is frequently the first symptom of improvement. In the yellow fever, it has been often and particularly observed, that the

want of bile in the discharges from the primæ viæ is unfavourable, and the same remark is applicable to bilious remittent fever.

That the force of the disease occasionally appears in the bloodvessels, will be conceded by all who have any acquaintance with the principles and practice of Dr. Rush; but, that it does so always, cannot be reconciled with the knowledge of the fact, that frequently great prostration of strength is observed, while at other times there is a striking continuance of muscular energy, until the close almost of life; and again, there appears an extreme disturbance of the brain exclusively, or a natural state of the pulse, and a general sensation of returning health, a few hours only before death. The sudden invasion of black vomit at the moment of convalescence, as seemingly indicated by the pulse, and general feelings of the patient, is also opposed to the theory "that the whole onus of the disease falls exclusively on the vascular system;" and that a "morbid secreting action" of "the entire mass of the smaller arteries and bloodvessels" is going on through the system, and constitutes the essence of the disease.

The symptom, however, upon which Dr. Irvine rests principally, in contending for the distinctive character of yellow fever, is the great irritability of the stomach. This is a symptom common to so many diseases, that we

are at a loss to know how it can be so peculiar to yellow fever, as to "constitute a sufficiently broad line of demarkation between the respective diseases;"* for our own part, we think the redness and expression of the eye, and the countenance generally, the most striking feature of the disease; but neither this, nor any other symptom, or series of symptoms, is pathognomonic of yellow fever, as distinguishable from bilious remittent fever; indeed the *importers* themselves admit the impossibility of distinguishing it from the aggravated form of bilious remittent, and have referred the difference altogether to the principle of contagion appertaining to the one, and not to the other. Moreover, the irritability of the stomach in yellow fever at first, is not greater than in many other instances of disease; for we frequently observe patients taking, and retaining on the stomach, very large quantities of drink, swallowing repeated doses of calomel and jalap, salts, boneset-tea, and castor oil, and a variety of other articles, equally, or nearly as disagreeable. Besides an extremely delicate and irritable state of the stomach, is as uniform a symptom in the severer forms of bilious remittent fever, as it is in yellow fever, and is removed by the same means, which are employed

* See Dr. Irvine's Treatise on the Yellow Fever of Charleston.

for its removal in yellow fever; indeed the identical remedy which is so highly recommended by Dr. Irvine, has been frequently employed by physicians in the western states, and for the express purpose of removing this extreme degree of irritability of stomach, occurring in the ordinary bilious remittent fevers in the country. From these, and a variety of other considerations, suggested by reason and experience, we are unable to yield our assent to the doctrine, that the yellow fever is never a bilious disease. On the contrary, we know that dissections of persons who have died of yellow fever, have discovered the stomach and duodenum inflamed or gangrenous, and the smaller intestines sometimes in a state of disease, and that the liver has been frequently found enlarged, inflamed, and altered in its colour, and the gall-bladder and ducts exhibiting a dark viscid, and very unnatural state of the biliary secretion. We believe that the stomach is oftentimes only the *seat of the sensation of uneasiness*, complained of in the yellow fever, while the cause of it perhaps is to be found in the hepatic system; and that the subsequent appearances of the stomach, are not unfrequently the effect of morbid association, occurring with all the rapidity which characterizes the march of this disease.

We shall finish this part of the subject with an extract from Dr. Irvine's pamphlet containing a detailed account of the symptoms of this fever, as it appeared in Charleston.

The time of the attack he states "is generally just before day break, at the period when the collapse of sleep is probably most complete. The seizures which occur thus early, I have observed to be usually more severe, and are more apt to terminate fatally, than such as take place in the forenoon, for persons are rarely attacked at any other than these periods, in the twenty-four hours. In the first instance the patient often awakes in violent tormina, affecting the stomach and bowels, which seems to suspend or put off the febrile action, for it is not until the decline of the pain that the fever commences. In common, however, the symptoms are such as have often been described; namely a sense of lassitude with pain of the head, back and limbs, accompanied by *nausea*, and uneasiness of the stomach. The fever sometimes immediately succeeds these affections, at others, it is ushered in by an obscure chill or slight rigor. The arterial action is considerable, attended by a parched state of the skin, with flushing of the face, and redness of the eyes—the last however is not an invariable symptom. The pulse is in most cases tense and strong, but in a

few instances, irregular and oppressed, while the tongue continues clean and gummy, being very seldom foul, or covered with a white furr. The patient always complains of great oppression of the præcordia, and is exceedingly dispirited, sighs much, and is often affected with slight delirium or wanderings of intellect. These symptoms are followed by frequent retchings, and the discharge of various foul matters from the stomach, the chief of which seems to be a bilious saburra, which is probably always more or less accumulated in the first passages. In these vomitions, pure bile is sometimes thrown up, but which, as has been shown, has nothing to do with the disease, being caused altogether by the violence of the efforts to vomit, which has the effect of emulging the biliary ducts, as often happens in cases of common sickness. Flatulence is another distressing symptom, which seems to be confined wholly to the stomach, and though the patient appears to be often on the point of getting rid of it by eructation, a regurgitation to the stomach takes place, and this wind or gastric gas thus continues to undulate, creating great distress and restlessness. The paroxysm seldom extends beyond thirty-six hours, though it may be protracted to forty, in a few instances. Its subsidence, which is never marked by any critical or perspiratory discharge, is succeeded by a remarkable quies-

cence, and in fact collapse of the whole system. The pulse becomes equable and natural, the skin relaxed and cold, the intellect clears up, and the patient appears to be doing well. There is sometimes, however, at this period of the complaint, a stupor, which is always a symptom of great danger—Another bad sign is a morbid irritability of the stomach, manifested by a renewal of the efforts to vomit whenever pressure is made by the hand on that organ. It is also a very unfavourable symptom, when the patient expresses an opinion that he is well, or that very little is the matter with him. The last and most fatal effects of the disease, are an increased debility and prostration of strength, a sinking of the pulse, and an exacerbation of the irritability, pain, and heat of the stomach, followed by incessant strainings to vomit and repeated discharges of the black vomit, or stuff resembling coffee grounds, with a dejection of similar dark matters from the bowels. The urine at this time becomes dark and fetid, the yellow suffusion with petechiæ make their appearance, and hemorrhages from the fauces, nostrils, and other external surfaces take place. Finally, the pulse intermits, the breathing becomes laborious, the extremities gradually grow cold, and life ceases. The symptoms here detailed, are not, it is to be observed, invariable either in order or occurrence. Patients often die without either the hemorrhages, black vomit, or yel-

lowness of the skin. The last mentioned peculiarity sometimes shows itself immediately on the decline of the fever, and may always be regarded as a certain precursor of the formation of the black vomit. In the early part of the season, the cases usually terminated on the fourth day, (reckoning always the natural day of twenty-four hours.) As the season advances, they extend themselves to the sixth day, when the worst symptoms appear on the fifth. Towards the end of the summer, the disease is sometimes protracted to the eighth and thirteenth days; during this long collapse, the patient generally remains perfectly quiet, though very much prostrated, except where injudicious attendants tamper with the stomach, by improper administrations, and bring on the vomiting and other afflicting symptoms.

Although, as I have before observed, this disease is dissimilar from every other whatever, it is yet susceptible of a certain degree of modification, as we have a *subgrade* of it, which in a majority of cases, eventuates favourably on the third day, by perspiration, and is never accompanied by the black vomit, hemorrhages, or any of the more violent symptoms. This mild form of the fever, is capable however of being exasperated into a serious disease, by improper treatment, particularly by the administration of *mercury*, which being an excitant of secretion, brings on all the fatal

affections which characterise the higher grade of the fever."

At this time also a disease appeared at Savannah, which, like that of Charleston, was confined principally to strangers and children. In the course of the disease, we learn that, symptoms occurred resembling those which arise from taking "an over dose of arsenic, or any other deadly substance"* into the stomach—nearly three hundred cases of it occurred in the single month of October; comparatively few of the native adults were affected by it; during the last two weeks of September, there were one hundred and sixty three cases—thirty-four of which occurred among the resident citizens, and of the thirty-two deaths reported for the same period, thirty-one occurred among foreigners;† its mortality among the fluctuating population, foreigners and new residents, was unusually great, and may be judged of from the report of the Medical Society of that place, in which we find that "the Irish people that have come here at different times during the season have been almost entirely swept away; and in relation to them, the mortality has been parallel with a plague in Egypt." The climate is said

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* Vide report of the Medical Society of Savannah.
† Ibid.

to have operated on Europeans like a poison, and the report adds that "the type of the disease was conspicuously bilious." A very destructive fever of the same character appeared in this place in the summer and autumn of 1817, which was then, and has since been said, to be the yellow fever. The Mayor of Savannah, however, declared by proclamation that the yellow fever did not exist there during the last season, and in consequence of it, that place enjoyed all the advantages of commercial intercourse with the northern cities; while the vessels from Charleston, where the same kind of fever prevailed, but, was not as fatal, were compelled to submit to the expense, delay, &c. of a rigid quarantine.*

We have no means of ascertaining the number of cases which occurred during the prevalence of the epidemic, or the number of deaths which it caused. It does not appear to have been considered contagious, but like the yellow fever of the West Indies, is viewed as the offspring of a hot climate, operating on the soil and the vegetable and other substances necessarily accumulating in a populous town. It is to be hoped that some of the medical gentlemen of Savannah will furnish an account of the epidemic which appeared there in 1819. A disease of a similar character,

* See Charleston Courier November 8th, 1819.

is at this time, we are informed, prevalent in that city.

We have to notice next a similar disease which prevailed at Mobile during the summer and autumn of 1819. There is little reason to doubt its having been one of the most violent forms of yellow fever. We regret that we have not yet received any account of its symptoms and treatment. A short time after the subsidence of the fever, seven of the inhabitants, the greater part of whom had remained in town during its continuance, were appointed "to investigate the causes and extent of the late extraordinary sickness and mortality." From the report of that committee, we learn that "in its type and symptoms, it seems to have exhibited no peculiar characteristic marks or effects to distinguish it from the yellow fever of other seasons and places, as described by physicians, unless it be the greater mortality which attended it;" and that they believe it to be justly attributable to a variety of local causes, under the influence of a most unusual season. The committee remark, that "the season has been a very uncommon one, and has produced uncommon effects, and wherever it has operated upon local causes, it appears to have produced malignant fevers." "Some remarks upon the general state of the country around, in regard to sickness or health, being intimately connected

with this subject, as influenced by general and common causes, may not be deemed improper. At New-Orleans, Baton Rouge, Natchez, and perhaps generally upon the Mississippi, as high as the latter place, the same species of fever seems to have prevailed with great mortality. Natchez and New-Orleans, it is understood, have suffered beyond any former examples. In the interior of the country, upon the waters of the Tombecbe and Alabama, the sickness and mortality was greater than was ever known before. At St. Stephens, Jackson, Fort Claiborne, and other places on those rivers, bilious fevers of the worst grade prevailed; and in many instances we are warranted in saying, that in type and symptoms, it differed little from the fever which prevailed in this town" where they observe "art and labour could scarcely have combined a more destructive mass, for the production of malignant fever, under the operation of such a season, than is found to have been laboriously collected together in filling up lots, streets, and wharves." "June and July were uniformly hot, greatest heat 92 degrees. The storm of July terminated a long drought, and deluged the whole country around; all the lesser rivers and creeks overflowed their banks to the height of winter floods. From the 28th July to the 11th September, it rained without a day's intermission; and often descended in torrents. All the neighbouring swamps and low grounds about

the town, were filled with water to a height unexampled at that season of the year. The sun at times burst forth with sultry, suffocating heat. The brick walls, houses, furniture, books, and clothing, all became mouldy, and the latter required frequent sunning to preserve them from destruction."

From the description given by the committee of the general state of the city, and particularly of the structure and condition of some of the wharves and streets, we cannot entertain a doubt of the local origin of this disease. One vessel only arrived from the West Indies, and that, not until after the middle of August; several weeks prior to this time, a number of cases of the most malignant type had appeared; we must however, in the first place notice the local causes of disease enumerated by the committee, who in speaking of the wharves, report, that they are "built with hewn timber, closely laid, confining the water within the outward dimensions of the wharves, and filled up with rotten logs, bushes, shavings, and other vegetable matter, covered lightly with swamp mud or earth, presenting to view an immense mass, in the most noxious state of decay. Two of these wharves, about 450 feet in length, and 30 to 40 in breadth, were commenced in the spring, and the work of filling them up with logs, mud, and bushes was carried on during the summer, till the storm on the 28th July, and the sick-

ness of the workmen put a stop to it. They were however nearly filled up to the length and breadth mentioned, and to the depth of from four to ten feet, and the surface of about a third part, covered with pieces of swamp marsh, cut in convenient sizes for the purpose, and marsh mud. When the committee viewed these wharves, the sight was most disgusting, and the smell so offensive, that they felt their health endangered by delaying about them."

The other wharves, five in number, also deserve a more particular notice. Three of them appear to be built upon the plan of the former; and with like materials, two are partly built upon piers, giving a more wholesome circulation to the water. One was built during the spring and summer, but chiefly destroyed by the storm of July; the others from one to four years since, each of them affording a mass of decaying vegetable matter, from two hundred to four hundred feet in length, twenty-five to thirty in breadth, and three to ten in depth, covered with a thin layer of earth, or mud. Water-street is also observed to be filled up with the same kind of materials, in many places to the depth of from four to six feet, and computed together, might afford a mass of such matter, several hundred feet in length, and fifty in breadth, thinly covered with earth. The lots adjoining this street, on one side,

are found to have been chiefly filled up with rotten logs, green-pine sapplings, and pine tops, with a thin layer of earth, and might comprise more than an acre of ground, thus filled from one to two feet; and on the water side, the docks are observed to have been much clogged up with timber, and drift logs, and old boats, which, during the low summer tides and north wind, collected together in the docks, great quantities of sea weed, and other filthy matter in a state of decay, particularly under the stores standing over the water.

The badly constructed foundations of the stores and buildings near the river, retaining beneath them much unwholesome matter or stagnant water, affecting the inhabitants with their deleterious damps and effluvia, must have proved a fertile source of disease under the influence of the late season. To these causes, we must add the general condition of the back yards, and enclosures in the town. All the prudential measures of an effective police, seem to have been totally abandoned, and the committee are compelled to say, that every part of the town presented a striking proof of the extreme neglect of a large portion of our citizens, to the ordinary duty they owe themselves and their neighbours, that of keeping their yards and possessions clear from every species of filth which may be injurious to health.

Ponds of water in various parts of the town, were suffered to remain undrained after the rains, and became stagnant, thus affecting the air with poisonous exhalations." These, besides a variety of other nuisances, which are as particularly described by the committee, and represented to have been exposed to the heat of a very uncommon summer, are stated as being abundantly sufficient, to account for the local formation of yellow fever. No unusual sickness appeared during the previous winter, spring, and summer, until the first of July. In the latter part of that month, "a number of violent cases of bilious fever occurred among persons unaccustomed to the climate, and some of a more questionable character. Several persons employed as workmen in filling up one of the new wharves, were taken violently ill, and died after a short illness of two or three days. About the same time, two persons usually employed about Dauphin-street wharf, were taken in like manner, and died after a short illness. A number of carpenters and sailors employed about the wharf south of the fort, and were much on board the schooner Sally, filled with stagnant water, and the steam saw-mill, where there was a pond of like offensive water, were taken with violent fevers, and several of them died; but as the physicians who attended all the persons alluded to, are dead, the particular symptoms of the

fever cannot be well ascertained. It is however known, that Dr. Lawton, one of the attending physicians, spoke of these cases as malignant fever. Soon after these cases occurred, Snyder, an engineer, at work on a steam-boat at the same wharf, died with violent symptoms of fever, after an illness of five days. Plank, who attended Snyder, and employed at the same place, and a Dutch servant boy, who lived in the house where Snyder died, were a few days after taken with like symptoms of fever, and died on the third or fourth day. All these cases, were by the attending physicians, now dead, declared cases of yellow fever, and it is in evidence to the committee, that they died with black vomit. Snyder died on the 7th August, and Plank on the 9th, several other cases occurred about the same time among the workmen, at one of the new wharves, and terminated fatally after a short illness. At the two wharves mentioned, the first unequivocal cases of the yellow fever made their appearance; and about the same time, other cases occurred, which terminated fatally with persons usually about the stores, near the wharves and river, about the same period."

The committee then go on to investigate the evidence respecting the introduction of the fever from Havanna, in the sloop Patriot. It will be seen that she did not arrive until the 19th of Au-

gust; ten or twelve days previous to that time, several persons in Mobile, had already died with black vomit, and many also had fallen victims to a malignant disease in the latter part of July. The committee state that "the vessel arrived at the wharf, direct from sea, on the 19th of August, after a passage of fifteen days from Havanna. The officer of the customs says, that 'he was the first person on board the Patriot after her arrival, that he examined her cabin, hold, and cargo; that the cabin and hold of the vessel appeared, from any thing he could discover, in a pure and wholesome state. Sixteen bags of coffee, however, were wet, and considerably damaged, and some fruit rotten; the rest of the cargo in good order, that he attended the unlading of the cargo three days; the master, passengers, and crew, appeared to be in good health, excepting Graham, a seaman, and the cook, who appeared to have had a fever. Graham was able to do duty on board, the cook not much unwell: that the vessels which arrived at Mobile during the months of June, July, and August, were generally healthy, no vessel except the Patriot, arrived from a West-Indian port. The schooner M^cDonough, arrived the 17th of July from Nassau, N. P.' From the most diligent inquiry in regard to the state of the town, and the cases of fever, which had existed before the arrival of the Patriot, the

condition of that vessel, the passengers and crew, as well as the vessels which arrived from New-Orleans and elsewhere, the committee are constrained to express their decided conviction, that the malignant fever which so recently afflicted our town, originated in the numerous causes they have mentioned, favoured by the destructive effects of the storm and the subsequent season." For upwards of forty days in succession, it rained, and frequently with great violence, until "the evening of the 10th September, when it cleared off, wind N. W. with hot sun, and so continued for sixty-six days, to November 16th, the wind varying from N. W. to N. and N. E. during the whole of this period, there was scarcely rain sufficient to lay the dust in the streets." "The effects of the change of weather on the 10th September, were very obvious to all. In a few days after the wind changed to the northward, with a clear sky and hot sun, the fever made its appearance in *different* parts of the town, in all its fearful, deadly type. On the 16th, 17th, and 18th, *thirty* persons are reported to have died. Alarm spread through the town, and those who could, conveniently, left it;" of the poorer class of people, "which embraces nearly all those who arrived in town from the public works on Mobile bay, the fever was observed to be dreadfully mortal, almost all of them died. Of more than a hundred discharged

at those works, who came to Mobile, it is believed that very few are alive. At certain places in town, there was a continual succession of these people arriving, and passing to the grave." "For a while, the disease seemed to be mostly confined to those employed about the river and wharves, but in a few days after the prevalence of north wind, and clear hot sun, September 16th, it spread rapidly through the whole town, and from that date, seems to have affected the creole inhabitants, people of colour, and even slaves."

The settled population of the town, in the month of July, was estimated at thirteen hundred, by the middle of September, it was reduced by removals, death, &c. to five hundred, and many "of these were in the suburbs of the town, where the fever did not prevail." It is supposed that one hundred and fifteen of the resident population died of yellow fever, and that the whole number of deaths from the same cause, was near three hundred. The sick generally died on the first, third, or 5th day of the disease. We finish this abstract with the remarks of the committee, respecting the non-contagiousness of the disease. "It was observed that the suburbs of the town, at no greater distance than one mile from the river, were as healthy during the prevalence of the fever, as more distant parts of the country; and it is not known that the disease was communicated,

in any instance, to persons out of the town, by the removal and attendance of the sick. Hence we infer, that the disease is only communicable in the atmosphere where it originated; and even there, some predisposing causes appear to have been necessarily existing, as a number of persons frequently in rooms with the sick, the dying, and the dead, in circumstances of the greatest exposure, never took the fever."

The report, from which the preceding extracts have been taken, may be thought by many, to be more valuable from the circumstance of its having been drawn up by a number of the citizens, one of whom only was a physician, who could have no theory or professional opinion to maintain; and whose residence, business, interest, and perhaps feelings were all concentrated in that particular place. In spite of all these usual inducements to conceal the truth, as has been customary in other older and more conspicuous places, from interested or commercial considerations, they adopted a course, suggested by wisdom and humanity, of avowing the causes of their affliction, in the hope of averting the evil hereafter. Instead of holding out the allurements of health and prosperity to induce strangers to visit and settle in their town, they have raised a warning voice to the inhabitants to be " zealous and active in the removal of the numerous causes of disease, daily trodden un-

der their feet, daily presented to their view." It is the peculiar excellence of the truths of this doctrine to rouse public attention to such efficient measures, as will permanently arrest the progress of human misery, so much accelerated by the sufferings and mortality of yellow fever; while the opposite doctrine of importation, exclusively upheld, will sooner or later, as certainly lead to the invasion of yellow fever by surprise; when its ravages will be proportioned in some measure to the neglect of the means of internal prevention.

It is understood that the yellow fever prevailed to an unprecedented extent the last season at New-Orleans, and proved fatal to more than three thousand persons. We have not yet seen any published account of it, but from private communications we are informed, that it was of an unusually malignant character, and resisted all the methods of treatment which had formerly been resorted to, and that every departure from the ordinary plans of treating it, had proved equally unsuccessful. Many of the physicians of that place, after believing for a long time in the foreign origin and contagious character of the disease, have now arrived at the settled conviction of its indigenous and non-contagious nature. The annual returns of this dreadful scourge for many years past, have furnished the most melancholy opportunities of correcting the previous errors of inexperience,

and some of the most distinguished physicians, from their observations in New-Orleans, have been compelled to abandon long cherished opinions of its contagiousness, imbibed in the schools in which they were educated. The Governor of Louisiana, however, has officially announced his opinion that it is contagious, and has applied to the Legislature to enact more efficient laws against its importation. His opinions and proceedings are doubtless the results of the most profound reflection and research; but, we apprehend that legislative enactments of that kind, will be inadequate to prevent the re-appearence of the disease; and should they even effectually preclude the approach of yellow fever from abroad, they cannot possibly extinguish the many local causes of that disease, which are to be found in and about the city of New-Orleans. Other legislative measures directed to the improvement of the city, by draining, raising, and paving the streets and yards, so as to prevent all collections of water, and exhalations of foul air; the establishing of a rigid system of police for the preservation of proper cleanliness, and purity of the atmosphere; the draining of the adjacent marshes, and covering them as far as practicable with a thick layer of sand or stone; and facing the banks of the river wherever it can be done, and preventing the exposure of its mud and filth on the falling of the water, will, in our view

of this subject, contribute much more abundantly to the health of that city, than the enforcement of the most perfect system of quarantine that has ever been devised. But as long as the many fruitful sources of disease, some only of which we have mentioned, are suffered to remain, so long will New-Orleans, under the influence of its present climate, continue, like Constantinople, to feel the annual returns of this destructive endemic. During the last season it appears to have prevailed with a dessolating violence little short of the plague. As the endemial disease of that section of country, cases of it more or less violent in their nature, are met with throughout a very large portion of every year. It is not therefore the mere existence of yellow fever, but the extent and violence of it, that create alarm in the inhabitants of New-Orleans; and it is to be hoped, that its presence in that city will never be proclaimed like the existence of the plague in Constantinople. It is said that the plague annually visits that city, and occupies a large portion of the year, and its existence is only proclaimed when a hundred bodies are carried for interment through a certain gate in one day, and then prayers are offered up on account of the disease. Whatever may have been said respecting the difference between the yellow fever and the plague, there are certainly many points of strong resemlance, that have been notic-

ed by physicians in the course of the epidemics of yellow fever, in different parts of the United States. In this city, and elsewhere, cases have occurred, corresponding in every respect with some of the descriptions of the plague; and these, it may be remarked, do by no means uniformly correspond, so as to establish the identity of the diseases which have at different times appeared, and passed under the appellation of plague. Indeed, it seems, that under this vague term, several, and actually different, diseases have been described by authors, and the facts related by some of them preclude the belief in its long asserted attribute of contagion. By some authors, it is described as a proper typhus fever, unaccompanied by any diseased state of the liver, or its secretion, and resembling the fever which frequently appears in the winter season in the crowded, dirty, and ill ventilated houses of the poor, and which has completely ceased on the destruction of their dwellings causing a more free circulation of air; while by others, it has been described as a summer or autumnal disease, associated with functional derangement of the liver. From the treatment which it sometimes admits, it would seem to be an inflammatory disease, and at other times, the success of the stimulating plan would indicate it to be of a purely typhoid character. Dr. Neale writes, "the real truth may be, that

plague is nothing but bilious remittent fever, under its worst possible form, attended with petechiæ, blains and swellings of the lymphatic glands, which sometimes suppurate, but oftener do not. If they suppurate, or the patient perspire freely, he recovers, but if not, the disease proves fatal. All those who have the plague, however, have not buboes, and these are generally believed to have remittent fever only. Hence the strangest contradictions and mistakes are to be found in all writers on this subject, and they have from time to time occasioned wrangling, scepticisms, and false reasoning without end; some asserting the non-contagion, and others the wide propagation of pestilential virus." He considers that the unhealthiness of Constantinople results from the great extent of marshy ground which bounds it in almost every direction, comprising in his opinion twenty square miles of marsh; and expresses no surprise that its half civilized population "fasting all day, gorging all night, wallowing in sensuality, or expiring from misery, clothed constantly in animal substances, generally in a decaying state, without changes of linen, and hovering all winter over the effluvia of charcoal, should be the victims of pestilential poison.*

* See Dr. Adam Neale's Travels through some parts of Germany, Poland, Moldavia, and Turkey, published in 1818.

As it is not yet in our power to give any authentic history of the epidemic of 1819, or of the various methods of treatment which were resorted to, we shall here insert an extract from a report to the Medical Society of that place respecting the yellow fever of 1817—calculated to convey some idea of the situation of New-Orleans, the character of the climate, and of the origin and nature of the disease.

The report commences with the origin of the disease, and in treating of the atmospheric constitution it is added, that "the months of April, May, and June of 1817, were very rainy, the country around New-Orleans remained for a long time covered with water. The tides of the lakes also rose higher than usual, the winds, which until the end of June, blew almost constantly from the south, now suddenly shifted round to the north. A humid and stifling heat prevailed, during July and August. About the end of June, the thermometer stood at 92°. In July it varied from 86° to 92°; in August from 84 to 94; and towards the end of September, from 80° to 85°. This city, New-Orleans, situated below the level of the river, stands upon a soft and humid soil, and is surrounded by vast marshes and cypress forests. When the river falls in the summer, it always leaves a large space before the city, covered over with mud and putrifying animal and ve-

getable matters. Strangers who had recently arrived, or such as had not yet become inured to the climate; young and robust men, of a sanguine temperament, or of a gloomy and timid disposition, were more obnoxious to its attacks, than those advanced in age, and of a feeble and delicate constitution, but full of courage and resolution. Pregnant women generally suffered abortion, when attacked with the disease. The planters of the Antilles, the creoles, and the inhabitants of the surrounding country, generally escaped the fever. A number of infants fell victims to this epidemic. Many persons died in neighbouring places, whither they had retired too late, without, in a single instance, communicating the disease to others. Not one negro is remembered to have had the disease.

The epidemic manifested itself in July. Many symptoms of this disease had, however, been noticed so early as the latter part of June, especially in the city hospital, *before* the arrival of a vessel from Havanna, which had lost a part of her crew by the black vomit, during its passage. The disease increased in its ravages during July; and acquired great malignity in August, on account of the arrival of a great number of Europeans and Americans at that time. In the beginning of September, a violent storm took place, upon which the epidemic abated its fury. Weather

variable until the 20th of this month; at which time, the south wind began to blow anew. The heat again became very intense, and the fever still raged with violence, especially among those who had lately arrived."* In the same season of the same year, to which the above report alludes, the town of Natchez, about two hundred miles distant from New-Orleans, was visited with the yellow fever, and suffered a very great reduction in the number of its population. At that time, we are informed by a very respectable physician of the place, it was found so absolutely impossible to trace it to New-Orleans, that its local origin was admitted by general consent. During the last season, it again appeared at this place, and destroyed between two and three hundred of the inhabitants. We have seen several persons who have visited Natchez, and among the number some very respectable physicians, who have spoken of the occurrence of yellow fever there as a matter of course, consequent to the abundance of stagnant water in and about the place. The alteration in the shape of the ground about Natchez, for the purpose of regulating the streets, has caused a number of water-pools, the exhalations from which, have proved particularly of-

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* Vide Rapport fait à la Société Medicale, sur la fièvre jaune qui a regné pendant l'été de 1817. Par M. M. Gross et Geradin, 8vo. p. 62.

fensive. Dr. Kerr, in a communication to a correspondent in this place remarks, "our little city was last year a second time ravaged by a most malignant and fatal disease, and yet strange to tell! the same destructive policy is pursued, which I have no doubt was one of the principal causes of the former visitations of yellow fever. Should the same kind of season again occur, very wet in July and August, and hot and dry in September, October and November, I have no doubt we will again have our town depopulated. The injurious policy to which I allude, is the effort to reduce the naturally rolling or hilly surface of the town to something like a level, by digging down the hills and filling the vallies. It may readily occur to you how the progress of such efforts would prove deleterious."

It should be remarked also, that the town of Natchez, although situated on an eminence, is surrounded in a great measure by low marshy ground, more or less contiguous to the place, and in some parts very near to the town, and that this town is in the midst of a country which is annually subject to the prevalence of bilious remittent fevers of a more or less aggravated type.

It was not considered safe to visit either Natchez or New-Orleans the last year, until the beginning of the month of December.

From the existence of yellow fever in the West Indies, and in so many different places of the United States, serious apprehensions had been entertained for some weeks, that this city also, was doomed to experience a visitation of that disease. Several of our physicians had observed the growing causes of it in the character of the season, and the filthy condition of several parts of the city. The great heat of the weather, the unusual prevalence of disease, and the great mortality which occurred in our city and parts adjacent to it, have already been noticed. Several instances had been remarked in the month of August, of persons being attacked suddenly with bilious affections, which terminated abruptly in death, after exhibiting a rapid succession of violent symptoms. Severe cases of bilious remittent fever appeared in several parts of the city and suburbs, accompanied by great prostration of strength, or inordinate disturbance of the animal functions. The tendency of the weather, to produce miasmatic diseases, was supposed to be controled by the unusual dryness of the season, being unfavourable to the production of those deleterious exhalations which usually engender a long list of summer and autumnal diseases: this perhaps is the reason in some measure, of our city escaping a greater degree of sickness, which is oftentimes proportioned to the intensity of heat, and the co-

existence of local causes, combined with the agency of moisture.

The Board of Health aware of the danger of the yellow fever making its appearance had adopted all the necessary measures of precaution against its introduction from abroad. The Board in their report of the 25th of October 1819, say that "in this state of things it was to be feared, that some spark of that pestilence which was raging round us in so many directions might alight and kindle here. To guard as far as possible against this danger, the board determined that our quarantine regulations, as far as they were under their control, should be carried into full effect." The quarantine law, it is believed, was rigidly enforced in relation to our own city, whatever may have been the danger from the frequent violations of it to our sister city, Philadelphia; and we are not disposed to justify the unchristian conduct of disregarding the health and lives of our fellow creatures, by permitting persons to go to a neighbouring town, or elsewhere, on condition of avoiding the risk of contaminating the good people of our own city, by a premature visit to them. This however arose from a defect in the health laws, which until corrected, served to protect the administrators of them from all lawful condemnation.

Notwithstanding the vigilance of the Health Officer, and the solicitude of the Board of Health for the security of the city, yet it was afterwards discovered that vessels had actually come into the river, adjoining the wharves on the east side of the town, after undergoing a detention and purification at the quarantine that were inadequate, *it is supposed*, to the extinction of disease. The most obnoxious of these vessels, it now appears, was the sloop Hiram, from Baltimore, upon which the odium of introducing the pestilence is rested. It is said that this vessel brought to New-York the disease which prevailed at Fells Point in Baltimore; that a person died on board of her on the third or fourth day, having sickened on the day of sailing; that two days after his death, another person sickened, who, together with two others, on their arrival at quarantine, were admitted into the hospital; the first of whom died; the other two soon recovered; the one from an intermittent, the other from a mild remittent fever. The complaints of the first two, we have no doubt, arose entirely from intemperance, and we are supported in this opinion by the testimony of the captain under oath, and his testimony is corroborated by the concurrent opinion of the crew and passengers of the vessel. The report which has been given to the public, and presented to the Board of Health as evidence of the importation

of the yellow fever was obtained from the mate of that vessel; but his character has been impeached by the captain, crew, passengers, and proprietors of the sloop, and he has since avowed his ignorance of what is contained in the communication of Dr. Hicks to the Board of Health, and has expressed his immediate readiness to be qualified to the *denial* of all that he is there stated to have said. The mate of the vessel was reputed to be an exceptionable character, addicted to intemperance, and unworthy of credit. He was dismissed from the vessel on account of improper conduct, it is believed, some time before the communication of Dr. Hicks was submitted to the Board of Health, which was not until the second of November. The most ample refutation of that statement which we ourselves have heard in the progress of investigating this subject, together with the letter of Dr. Harrison, assistant of the late Health Officer, in answer to Dr. Hicks' letter, have left us entirely uninfluenced in our opinion by the story of the mate. He is made to say that the disease of which the two men died, was the same as that which prevailed at Fells Point in Baltimore, and that he, the mate, was refused admission to the quarantine Hospital, on account of the man's disease, which was yellow fever, and contagious. This statement of Dr. Hicks, and his mate, certainly differs very widely from

the account given to others by the late Health Officer, who did not consider it as a case of yellow fever, but allowed the vessel to come to the city on the eighth, after a quarantine of only five or six days, having released the passengers from all further restriction on the third day after their arrival; nor will Dr. Hicks' letter bear examination in connexion with that of Dr. Harrison, the latter is minute and circumspect in his account of the circumstances, as far as he has become acquainted with them, and discovers no bias of previous opinion or prejudice; while the former discovers the flimsy and delusive nature of the premises from which he makes his deductions, as well as an unreasonable degree of credulity in examining so intricate a question of medical evidence. We should not have noticed the letter of Dr. Hicks were it not that its matter, and the time and manner of its appearance, had vitiated the object of giving it to the Board of Health. For it is a little remarkable, that this account of the importation of yellow fever, from Baltimore, did not appear until long after the disappearance of the disease from this city. A reference to dates will show more clearly, that this story of the mates was altogether a gratuitous assertion, or an unwarrantable assumption on the part of Dr. Hicks. The Hiram left Baltimore on the 24th July, and the fever did not appear at Fells Point until the 17th

of August. The vessel however, it is admitted, did not come from Fells Point, and may therefore have brought the disease from that part of the city, Smith's Dock, from which she did sail, and where several cases of the fever did actually appear in the latter part of July, but whether on or before the 24th of July, we are unable to say; the captain's belief was, and he expressed it under oath, that Baltimore was healthy at the period of his departure. It is highly probable that it was within a very few days of the time of the fever making its appearance at Smith's Dock. From the account which has already been given of the yellow fever at Baltimore, it appears, that neither the physicians, the Board of Health, or even the public, generally, of that city, believed it to be contagious, and that no instance of its personal communicability had been detected by the most vigilant contagionist; that the persons who sickened with the fever had invariably taken it in certain districts of the city, and that in no instance did it spread in other parts of the city into which the sick were frequently carried; or even in the Hospital itself, where numbers were received with that disease. Admitting therefore that the man, Wright, who is said to have died of intemperance, did die of yellow fever on board the Hiram, and that John M'Kinley had yellow fever also, of which he died in the Hospital at quarantine, how

happens it that the disease ceased altogether on board of this sloop, " so laden with the dreadful infection,"* and having fourteen passengers, besides the captain and crew. The other two sick persons recovered, as we have already stated, the one from an intermittent and the other from a mild remittent fever. No other of the crew or passengers took the disease.

The sloop came to Old-slip about the 8th of August, and was immediately visited by her owners, their friends, those of the captain, and a number of other persons who fearlessly went on board, and many of whom have remarked to us the neat and cleanly state of the vessel. Not a single case of disease occurred among the many persons who had boarded her. The greater part of the cargo we understand was taken out of the vessel at quarantine. On her arrival at Old-slip, twelve or fifteen pipes of Gin were landed, and on the next day the captain, having taken his wife and children on board, proceeded in the vessel to the Navy Yard, there landed a quantity of iron and copper, and returned with the vessel two days afterwards to Old-slip; here it is believed she remained but a short time, the captain wishing to make some repairs and to have the vessel graved

* See Dr. Hicks' letter to the Board of Health, November 2, 1819.

and painted, went in her to some other more convenient place, and again took his family with him. He returned about the time of the shipping being ordered from the wharves, which determined him to go to Cow Bay, whither he carried his wife, family, and some friends, all of whom, amounting to more than twenty persons, continued to enjoy their usual health. We have inquired very minutely into all the particulars of this vessel, and are authorised by captain Evans to state, that the last time he left Old-slip, was at the instance of Dr. Hicks, who *advised him* not only to go himself, but to take his wife and children with him on board of this vessel, "so laden with the dreadful infection," *according to his own report two months afterwards* Why was so important a letter written so long after the events to which it alludes, when it was a matter of public and moral duty to disclose them at once. If he had any suspicion, or even the least reason to apprehend that the vessel was diseased, as he afterwards stated her to be, he was required by every principle of humanity to dissuade from, instead of encouraging men, women, and children to such dangerous exposure of their health and lives.

It would seem then, that the Hiram was not an infected or diseased vessel; and if the disease which she is charged with having introduced, was like that of Baltimore, it would not spread from

intercourse with the sick, since no instance occurred there of its being communicated by contagion. Indeed no case of indisposition occurred on board the sloop after she arrived at quarantine, nor have we discovered a single instance of fever being traced to her, notwithstanding the many vague reports to that purpose, all of which we have carefully and we believe dispassionately examined. But it is said that a passenger of the name of Mary Stevens, went to the house of Mrs. Kavenaugh, on the west side of Old-slip, and there assisted Mrs. Kavenaugh and Margaret Brady, in washing the clothes of some of the crew of the Hiram, and that Mary Stevens had the clothes of Wright, who had died at sea. Mrs. Kavenaugh did not wash clothes, nor did Mary Stevens lodge at the house of Mrs. Kavenaugh, nor were any sailors clothes washed there. Moreover, the captain of the Hiram has distinctly stated to us, that the clothes of Wright were buried with him at sea, those of M^c^Kinley, who died at the hospital, Dr. Harrison, the assistant Health Officer, has positively asserted did not come to the city. Mary Stevens remained but a few days in the city, and continued to enjoy good health, both while there and afterwards. She went to Mrs. Kavenaugh's intending to stay there until a vessel should return to Baltimore, for which she was waiting, in the expectation of

sailing in a day or two. She found Mrs. Kavenaugh sick, and unable to receive her, and did not remain there even until night; and we find by the letter of Dr Harrison, that she and her child were soon afterwards boarding in the neighbourhood of the quarantine. We have stated the above particulars, because they are the result of inquiries which we ourselves have recently made of the captain and owners of the Hiram, and of the friends and acquaintances of Mrs. Kavenaugh, and also of other persons who cannot be suspected to be in any way interested to garble or conceal the truth. Similar inquiries we find were made by Dr. Pascalis, and communicated to the public in November last; and as they were made in the presence of a third person, and a long time before this article was commenced, and almost immediately after Dr. Hicks' letter was presented to the Board of Health, we shall insert part of that communication for the express purpose of showing that Dr. Hicks' letter will not bear examination, even in relation to those very matters of fact which it purports so triumphantly to set forth. "On Friday morning the 12th inst. (Nov.) and in company with Mr. G. B. Rapelye, I called at No. 23 Old-slip on Mrs. Crosby, a respectable woman, who has kept a school for several months in the larger room of the house formerly tenanted by Mrs. Kavenaugh. On being asked several ques-

tions, she confirmed the circumstances already mentioned in my statement, viz. that her landlady, with whom she had been acquainted for a number of years, did not take in washing, there being no yard, nor other required conveniency on the premises, she did not keep any but female boarders. Mrs. Crosby keeping a school in the house, would not have suffered her to receive sailors as boarders. She then related the circumstances of her, Mrs. Kavenaugh's, last illness, during which she remained with her, and dressed her when a corpse. Two days after she was taken ill, three women just arrived from Ireland, by the way of St. Johns, New-Brunswick, on their way to Baltimore, where the husband of one of them resided, applied to her, Mrs. Crosby, for the temporary use of a room, much wanted for one of them who was indisposed. This favour Mrs. Crosby could not grant herself, but she obtained it from Mrs. Kavenaugh, who from motives of charity, allowed those women the use of a little room adjoining her school. Dr. Bliss, who was attending Mrs. Kavenaugh, was applied to by Mrs. Crosby, for the woman indisposed with a bowel complaint. She soon appeared to recover; but this was Margaret Brady, who, on retiring from the house of Mrs. Kavenaugh, to *No.* 65 *Water-street*, and from thence to quarantine, died of yellow fever. Mrs. Crosby was

asked whether she had any knowledge of a young woman named Mary Stephens, having been a boarder sometime in the middle or latter end of August, and a passenger in a vessel from Baltimore. She replied that a young woman from *Boston*, (name not remembered, except her christian name Eliza) had been a few days at Mrs. Kavenaugh's."

It was not until the 29th of August, that Mrs. Kavenaugh died, and admitting her death to have occurred, as is stated, on the fifth day of her disease, it leaves a period of sixteen or seventeen days from the arrival of the Hiram; and Margaret Brady was not reported sick until the 2d of September; it is not pretended that either of them visited the Hiram. In the house adjoining that occupied by Mrs. Kavenaugh and Margaret Brady, a lad of the name of M'Kay, and a man of the name of Olderloyd, were reported to be sick with yellow fever, the one on the 6th, and the other on the 8th of September. The two Van Nests sickened on the 30th and 31st of August, and died the 5th and 6th September. Mr. Brown died at 68 Front-street, on the 2d September, and John Davis, two doors from Brown's, on the 5th, and corporal Evans, who died about this time at Governor's Island, was in the habit of residing occasionally with Mr. Brown.

Not one of these nine cases recovered.* On the 6th of September, the Board of Health issued their circular, recommending to the inhabitants within certain prescribed limits to remove therefrom; and directing their agents to inspect the said district, and to remove every source of impurity that might be discovered in the streets, houses, and yards thereof, and also ordering the removal of all vessels from the docks within the said bounds: viz. "beginning at the foot of pier No. 8, east river, thence running on the easterly side of the same pier, and the adjoining slip to the corner of Pearl-street, thence up Pearl-street to the west side of Wall-street, thence down Wall-street to the east river." "It was in the same spot, where the fatal summer of 1798 had commenced its ravages, by a scourge which now seemed to be gradually diffusing itself."

We shall next examine the evidence that has been produced in relation to another vessel, that has been charged with introducing the contagion of yellow fever.

The French ship La Florentine, from St. Pierre, Martinique, where the yellow fever prevailed at the time of her departure, and where she

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* Dr. Pascalis has given a detailed statement of the history and progress of the fever, from whose work the above is taken.

had lost one of her passengers with that disease, came into the east river on the 24th of August, after performing a quarantine of thirty days. We do not learn that any sickness whatever, had occurred on board of her, from the time of leaving Martinique, until her arrival in the east river, a period of *fifty days*. She was not allowed to come to the *wharf*, but was ordered "to be anchored in the stream." It was not till the beginning of September, but how early in that month we are not told, that two of her seamen were taken sick with the fever, and she was ordered back to quarantine, and soon after went to sea. The date of their sickening it appears, was subsequent to the existence of the yellow fever in Old-slip, with which place, the captain and crew of that vessel had constant intercourse, which may also account satisfactorily perhaps for the death of the captain, which occurred at sea, and prior to the 25th of September, when she arrived at the quarantine, having met with a storm, and put back in distress. If the seaman and captain died of disease arising from a contagious principle on board of the vessel, and not of disease contracted in their visits to Old-slip, this ship furnishes a decided proof of the insufficiency of quarantine regulations as instituted at this port; and their insufficiency we apprehend, arises from their being founded on the principle of con-

tagion, instead of resulting, as we believe they ought to, from the nature and condition of the ship and cargo; and also from vessels being permitted after the performance of lawful quarantine, to take their stations opposite to those parts of the town, where the air is already polluted, and the disease actually prevailing. The convenience and facility of reaching the shore, is necessarily a temptation to the undisciplined sailor to visit the sickly quarter, and the irregular and intemperate habits of these men, furnish abundance of exciting causes of yellow fever; and these habits are necessarily indulged on such occasions, in conformity with popular notions, as measures of prevention. The case of the brig Eliza may also be cited as evidence of this defect; she reached this port on the 13th of August, "after a passage of six days from Charleston, having on board a sick passenger, who died the same day with yellow fever. She performed a quarantine of thirty days, and was three times white-washed, her limbers were taken out and cleansed, and she was otherwise purified, and on the 16th September she was allowed to anchor in the stream. Yet on the 6th October, her captain died of yellow fever, and on the 7th, one of her seamen sickened with the same disease." It is to be borne in mind that the captain and crew of this vessel also had communication with Old-slip. It is not pre-

tended I believe to attach to her the credit of introducing the disease, since she did not even come into the river till the 16th September, and the disease at Charleston it appears was not communicable; it was not even communicated by the sick passenger, who died the day on which the vessel arrived, unless we suppose the poison to have been *dormant* in the Captain and seaman for the space of fifty days; or that the contagion which did not even discover itself either at Charleston, Baltimore, Philadelphia, or Boston, about the persons of the sick themselves, had attached itself to, and was yet unextinguished in the vessel, notwithstanding the minute and thorough process of purification which she had undergone for upwards of thirty days. Why then is it that a frost of a few nights so effectually arrests it, when it bids defiance to all the means of art which were here resorted to; and if this principle of contagion did actually exist in the vessel, from whence was it obtained? it did not exist in Charleston, nor was it propagated in a single instance here, by the most concentrated effluvia arising from the disease of yellow fever itself. We have the authority of the Board of Health, to state, as well as the concurrent testimony of almost every physician who saw the disease, that it was not contagious, *excepting in one solitary instance*, the real nature of which, is so cloud-

ed by moral and professional obscurities, as to destroy its validity even as an exception. It was the last case reported to the Board of Health, and it was not even reported until after the recovery of the patient. Nor has it been asserted by these zealous partizans of contagion, that in this, more than doubtful instance of contagion, the disease spread to a single other person. Yet this case, with all its humiliating circumstances, furnishes the miserable amount of evidence of the contagiousness of yellow fever, derived from the epidemic of 1819 in this city. It is true, that other and "*stronger*" proofs of it were promised by its partizans, but, as little regard has been paid to the fulfilment of these promises, as to the means which have been employed to disseminate the errors of that pernicious doctrine. At this time the Board of Health had officially declared in their report of the 21st September, that the sick had in *no instance* communicated the disease. The poor of the infected district, to the number of one hundred and fifty, were removed to Fort Richmond on Staten Island. As might naturally be expected, some of them carried the disease with them, and several, if not all of those who sickened, died of yellow fever; yet the disease did not spread, although these poor people had been thus hastily crowded together, under circumstances calculated to favour

the extension of febrile poison. Nor did a single instance of the disease, spreading by contagion, occur at Fort Stevens on Long Island, where the sick poor were conveyed whenever it was practicable. With these facts, together with the many similar ones already related of Boston, Philadelphia, Baltimore, Charleston, Savannah, Mobile, Natchez, &c. we should naturally conclude that the question of the contagiousness of yellow fever would be suffered to rest, at least, so long as facts continue to press in such numbers against that doctrine. Here, without any concert, we find the towns on the Atlantic coast, from Georgia to Maine, declaring through their respective Boards of Health, which are composed, in some instances entirely, of men who are not of the profession of medicine, and in every instance, of some who do not belong to that profession, that the disease was not contagious, and that it was confined to certain districts, the atmosphere of which, was so impure, as to render it dangerous to visit them even for a short time. Several persons we are informed by the Board of Health took the disease in consequence of going into the infected district, and "thus kept alive the disease, which would otherwise have ceased for want of subjects on which to prey."

The disease, as reported to the Board of Health, was actually confined within the bounds

of the forbidden district, and however many sick were taken from it, and wherever they were removed to, still was the number of its victims not increased by a single case occurring beyond the barriers erected by the Board of Health. To the energetic and efficient measures of that Board during the last season, the inhabitants of this city are much indebted for the limited extension of the yellow fever. Whatever differences of opinion may obtain respecting the policy or lawfulness of some of their measures, there can exist no doubt of their being founded in humanity and good sense, and that they have resulted in the saving of human lives. To the intrepidity and unceasing vigilance of the chief magistrate, many of the inhabitants of that district, as well as of other parts of the city, are now indebted for their existence and exemption from the disease. The salutary precautions of the Board of Health were for a time ridiculed and opposed, but the propriety of their proceedings soon became apparent, *and the event perhaps has fully justified the means which were resorted to.* It is not at all surprising that the *Board of Health* should be desirous to trace an evil of this nature to a foreign source, and that their apprehensions should be excited lest, "some spark of that pestilence which was raging around us in so many directions might alight and kindle here." A Board of Health so

constituted, influenced by such natural fears, and so unprepared to appreciate the subject of contagion, could not be expected, nor perhaps would it be right officially to deny all belief in the importation of such a poison; their station clearly indicated to them the duty of laying before the public such facts as might come to their knowledge respecting the sources of this disease, and after as careful an investigation of them as could be made, to enforce the execution of wise and wholesome laws for their prevention or removal. We have been led to these remarks in consequence of observing in an able paper, on the subject of "contagion and the fever of the last season" in a late number of the North American Review, a reflection on the Board of Health, for stating on the authority of their Health Officer, some circumstances in relation to the sloop Union, from Boston, and also to show how improperly this vessel, in common with the others of which we have spoken, has been charged with introducing the yellow fever into Old-slip. The writer says, "we have seen no mode pointed out by which the fever of the last season was supposed to have been first imported into New-York, although the advocates of the doctrine of its foreign origin are numerous and zealous in that city. A most unjustifiable attempt, made by the Board of Health to trace one case to Boston, ought not to

be passed without notice. In their report of September 22d, the Board say, 'the Health Officer reported that captain Cary, of the sloop Union, had died at the Marine Hospital on the 20th. He had left Boston on the 2d, and his vessel had lain at the Central Wharf, near where the malignant fever prevailed.' The inference obviously intended to be drawn from this statement is, that captain Cary had taken the disease in Boston, and carried it with him to New-York. His vessel was ordered into quarantine; and because a passenger who had gone in her, after remaining seventeen days in quarantine, evaded the law, and returned to Boston, a proclamation was issued, offering a reward of one hundred dollars for his apprehension. It is perfectly well known in Boston, that there was no case of yellow fever on Central Wharf the last season, nor even on Long Wharf, by which the ship Ten Brothers lay, except of those who were actually on board that ship. If all the exertions of the good people of New-York, to trace their fever to foreign sources, are equally unfortunate, we fear, however disagreeable it may be to them, that they must still lie under the imputation of generating it among themselves."*

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* See North American Review for April, 1820.

A similar inconsistent and unsuccessful course of measures, on the part of the Board of Health of Boston, has not escaped the notice of the writer, who, at the commencement of the article includes that place also under a general condemnation of the present system of quarantine regulations: he adds, "at the same time Boston was equally engaged in enforcing the same precautions towards her sister cities; her Health Officers were not prevented, by the prevalence of the fever in its most fatal forms, in a small part of the town, and occasional cases of it in almost all the other parts, from yielding to the dread of importing it from abroad, but applied to the southern cities the same system of quarantine which some of them had enforced against us."

That the advocates of the doctrine of the foreign origin of yellow fever are numerous and zealous, in this city, we are enabled to say for the credit of the medical profession of New-York, is very far from being correct; and no physician, resident in this city, would hazard such an assertion. It cannot, however, be matter of surprise to us, that a physician of Boston should entertain such an opinion, since so much noise has been made by a few contagionists, who have transferred the controversy from the profession to the public at large. No longer able to maintain their ground in a legitimate manner, with their breth-

ren of the profession, a few zealous partizans of *exclusive importation*, with a civilian at their head, have been driven to appeal, through a *public print*, to the umpire of prejudice and ignorance, to decide a grave and intricate question in medicine by popular opinion. The non-contagionists, unwilling to compromise the rank and dignity of science, and of their profession, silently decline the proffer of arbitration, and charitably deplore the humiliation of their brethren: hence it is that *the opinions of a few only*, on this subject, have been heard, and have sometimes obtained a degree of attention similar to that which is excited, by the relation of the virtues of a variety of nostrums, with which they have so often circulated in print.

In common with the writer of the article in that review, we regret the existence of a law, which not only exacts the observance of such severe conditions on the part of those who desire to visit our city for health, pleasure, or business, but authorises the advertising of citizens and foreigners, with offers of reward for their apprehension, like common felons. We see no cause for *triumphantly congratulating the public* on the detection of persons who have merely evaded the quarantine laws, by escaping from personal confinement; or boasting of the exercise of the power to stop a vessel or steam-boat, to enforce

ne right of search for persons who have absconded, and perhaps under the fear of disease, from a place where the yellow fever actually exists, and the danger of which is daily encreasing by the arrival of infected vessels and diseased passengers. Such a situation is of itself, sufficient to excite disease in delicate persons—in those suffering from care, anxiety, or the vexation of business; and in those who are sinking under the effects of a sea voyage. From one end of the Continent to the other, it has been officially announced during the last season, that the yellow fever was not communicated from one person to another, and not even in hospitals, where the sick have been admitted in numbers. Why then should passengers be subjected to personal quarantine? does it diminish the risk of becoming sick to those who are healthy? or does it mitigate the severity of disease in those who have the misfortune to become sick? shall a person be cruelly compelled to expose himself to the risk of disease and death, and be debarred from the tender care and attention of relations and friends; or shall the aching heart feel the protraction of misery by the detention of a week or month teeming with anxiety and despair? The crew and passengers of a ship, will seldom escape altogether from sickness, if detained for any length of time inactive and dissatisfied; and after the confinement of a sea voyage, even the

most healthy stand in need of change of air and exercise; while the very detention of the vessel, serves to augment the evils and risk of personal detention; for if the ship on her arrival, be foul, or her cargo be offensive, or liable to rapid decomposition, as must ever be the case with fruits, and the various kinds of grain, and other articles, and the several materials employed as ballast, every hour's detention instead of lessening the evil, or diminishing the chances of the generation of disease, is adding to those very sources of impurity and nuisance, against which the law is designed to provide. We have seen from the official account of the Board of Health, how difficult it is to purify a tainted vessel; and have long since been taught the impropriety of admitting to our wharves, vessels that have been suspected to generate disease on board, independent of the existence of any supposed spark of contagion, or the possibility even of having received it elsewhere. Vessels crowded together along side of a wharf, or in a slip, are so many parts of a great nuisance, which, influenced by local and physical causes, as certainly become the source of disease, as the crowding together of the poor in old dirty and ill ventilated houses, is followed by disease and death. Vessels, with their cargoes and ballast, therefore, are the legitimate objects of a properly modified quarantine, and all its subsidiary

exactions, not only on their arrival, but throughout the whole of that season of the year, during which the yellow fever is apt to occur; while passengers and the crews of vessels in health, should be allowed to disperse at pleasure, and be subjected to no other requisitions than those of personal cleanliness, and the purifying of their clothes and bedding. The doctrine of the contagiousness of yellow fever, has long been an abundant source of misery, by encouraging false impressions of its nature; and the system of laws to which it has given birth, is a reproach to humanity, to the faculty of medicine, and to a free and enlightened people.

We cannot refrain from noticing the inconsistency of those who have contended for the contagious nature of yellow fever in one place, and its non-contagious character in another. The possibility of its being *produced* in one latitude by the agency of heat, and other causes, is admitted, as well as its *non-contagious* character in the pure air of that latitude; while its *contagiousness*, and the impossibility of its being *engendered* in a more northern latitude, are as vehemently insisted upon. Now, if contagion be essential to the character of the disease, we should naturally look for the production of its similitude in those who might be exposed to its influence; and, if it should be found that its counterpart can only occur under a peculiar combination of

circumstances, such as a high temperature and a peculiarly vitiated atmosphere, and then, independently too, of the existence of an actual case of the disease as the origin of the evil, should we not be wanting in philosophical precision to call it a specific disease, and yet not capable of propagating itself; a disease of tropical climates, and yet not capable of being produced, de novo, by that precise combination of circumstances, for a certain space of time elsewhere, which is admitted to engender, and keep it alive almost constantly in a tropical climate. If it be the effect of a cause, which is uniform in its operation, or necessarily productive of yellow fever, whence arise the infinitely diversified forms of yellow fever, from the slightest grade of the common fevers of this continent to the most aggravated form of putrid fever. The very fact of the extinction of the disease by the frosts of winter, is evidence that it depends upon a cause developed by the agency of a certain degree of heat, in connexion with some other circumstances, of the precise nature of which we are yet ignorant. That it depends upon the condition and temperature of the atmosphere, is presumable from the fact of its occurrence being associated, nine times out of ten, with the coexistence of moisture, of marshy ground, or of local sources of impurity, upon which the powerful heat of sum-

mer or autumn has acted; and it does not seem necessary that the immediate influence of the direct rays of the sun should be exercised to extricate this cause of fever, since fevers not only analogous to it, but, judging from external appearances, in every respect the same as yellow fever, have been caused by accumulated filth, exposed to a high heat, as we have seen in Philadelphia the last season, and also by putrifying vegetable and other offals deposited in the cellars of houses and not exposed to the immediate action of the solar rays. That heat, however, is one of the principal agents in the evolution of the causes of this fever, appears from the fact, that it is acknowledged to be a disease of tropical climates. It is contended also, although it be a tropical disease, that it has not unfrequently passed the bounds of the tropics, and spread its ravages in distant places, the climate of which is not only unfavourable, but directly hostile to its production; and that in these places, so incapable of engendering it, it *acquires* the character of a contagious disease, and is spread by personal communication with the sick; but which property of contagion it again *loses* as soon as the sick are removed to a pure air; which, in fact, is at once a concession, that the disease depends upon a peculiar condition of atmosphere, arising from heat and other circumstances; and if so,

the spreading of it is entirely independent of the nature of the disease itself, and consequently appertains exclusively to the atmosphere; a peculiarity which puts us in possession of a very singular species of contagion, that may be fearlessly and harmlessly imbibed in the vehicle of pure air, but becomes a noxious and fatal poison when wafted to us in a tainted atmosphere. It presents to us the singular and novel compound contagion, made up of the essence of disease and of the atmosphere itself, and may perhaps be successfully analysed by some future chymist, who may venture to explore this field of research, heretofore so entirely neglected by the learned in the art of chymistry.

It reminds us very forcibly of the inconsistency into which the celebrated Cullen plunged, in giving the definition of Synochus, a compound of Synocha and Typhus: at first, synocha; but in its progress, and towards its termination, typhus. The compound is "a contagious disease;" yet, by his own admission, the first part, synocha, is not contagious; which leaves a part only of the compound possessed of that property. This we think analogous to yellow fever, which, "under certain circumstances, is communicable from one person to another," as stated by a modern Nosologist; leaving him entirely at liberty to say when it is, or is not contagious, being a

convenient way of straddling the question, so as to save the trouble of investigation, and concealing the difference of words, by confounding the perplexing import of the terms contagion and infection to a more convenient season. This writer admits, by way of information in his book, that it is the same disease with the "*bilious remittent fever* of Rush and other American writers." Having publicly acknowledged the impossibility of distinguishing between these two diseases, he afterwards impugned the judgment of the late resident physician, and in a letter to the Board of Health, respecting the cases of the young Van Nests, reported to have died of yellow fever on the 5th and 6th September, concludes with the following:—"In these details you perceive the grounds upon which I expressed to you the opinion, that these are probably cases of bilious remitting fever, but not of yellow fever, which the first view of the sick might have led me to suppose;" and, in another letter, designed and equally well calculated to illumine the subject before the Board of Health, he remarks, "Were I to judge merely from the external characters of the disease, as exhibited at a single visit, *I frankly acknowledge* I should pronounce it a case of yellow fever. But, upon conversing with one of the physicians in attendance, and obtaining from him a circumstantial

account of the commencement and progress of the disease, I find that some of the essential features of that form of fever have been wanting in both these cases, and that the disease has exhibited, throughout, the symptoms of the *bilious remittent fever.*"*

The disease and death of the two Van Nests, soon greatly agitated the public mind, and especially as they were fearlessly and unequivocally stated, by the late resident physician, to be cases of yellow fever, and were followed by other cases of that disease, equally decided in their character. Indeed the author of these letters has denied that the disease was yellow fever; and attempted a most laboured and singular exposition of several circumstances wherein it differed from yellow fever; three days afterwards, viz. on the 9th September, he addressed another letter to the Board of Health in language of great decision. "This is *manifestly* a case of the yellow fever, attended with all the usual symptoms of that disease." In regard to the case of the Van Nests, we are informed that the first *frank opinion* of its being yellow fever, was expressed under a *heedless belief*, that one or both of them, had been on board of a vessel which had imported the disease, or had

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* See Dr. Hosack's letters to the Board of Health, dated 5th and 6th September, 1819.

been at, or in the neighbourhood of the quarantine; but, on finding that this could not consistently with truth be allowed, the character of the disease was *immediately changed* into a bilious remittent, differing from yellow fever *in eight essential points*, as we are informed by his own letter; but in the course of two or three days after, when it would have been hazardous to have persisted, even with consistent obstinacy to deny it, all these eight essential points are put to flight, and the next case is "*manifestly*" one of "yellow fever," "attended with all the usual symptoms of that disease." This, if closely examined, will be found to be rather an unfortunate acknowledgment in its bearing upon the doctrine of the contagionists. For we have already seen that the disease was not contagious here, or in any of the other cities north of Louisiana, and if so, it was not the yellow fever, but agreeably to the doctrines of the contagionists, only a remittent fever, by which it will follow from these letters, *if we really had the yellow fever in Old-slip last September*, that the cases which he pronounced to be bilious remittents, were in fact cases of yellow fever, and that the case which was so "manifestly yellow fever," was nothing more than a case of bilious remittent fever, and consequently, according to his own principles, that his diagnosis was wrong in both instances. For if the first two

cases were bilious remittents only, the third case could not be yellow fever, propagated by the first; otherwise, the first must have been yellow fever possessing the attribute of contagion, which is not allowed to belong to bilious remittent fever; but as no cases of the epidemic were discovered to be at all contagious, the third case also must have wanted this principle to constitute it yellow fever; and must therefore have been a case of bilious remittent fever; for the introduction of any new contagious poison, accounting for the cases subsequent to the two first, has not been even asserted; *excepting* the instance of a person in White-street, but who did not introduce it until *two days after the death* of the man who was the subject of the *manifest case of yellow fever.* We have understood that the deceased was addicted to intemperance, and as alkohol not only disguises many diseases, but gives a peculiar susceptibility to, and increases the virulence of contagion, due allowance must be made for its accelerating the appearance of that case of the yellow fever, especially as it occurred in the impure air of No. 86 Front-street; it was reported on the 9th, and terminated fatally on the 11th September. The person in White-street was reported at 2 o'clock, the 13th September. "This gentleman, although residing in White-street, *was exposed to contagion,* in the transaction of public

business at the quarantine hospital, during the illness of the late health officer."* In less than twenty-four hours, he was reported to be *convalescent*, the precaution having been first taken to *interdict* all communication with the sick man. It is said, however, that in the course of the same afternoon on which he was first reported, that he was induced by the consolatory attentions, and good humor of his friends, to get up, dress himself, go forth, and contradict the terrifying report of his illness; and the next day returned to his usual occupation. These circumstances serve in some measure, perhaps, to excuse the charge once publicly made against a former very distinguished and learned resident physician,† of incapacity to distinguish between the *jaundice and yellow fever;* we can now perceive a reason for suspecting the occurrence of such mistakes.

The following extract sufficiently explains the cause of these errors of judgment. "It is perfectly absurd to suppose that there are two diseases with characters so diametrically opposite, that one is propagated only by contagion, while the other possesses no contagious property whatever,

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* See Dr. Hosack's letters of the 13th and 14th September, 1819, to the Board of Health.

† The late Dr. Edward Miller of this city, whose talents and professional writings, have raised the medical reputation of his country.

and yet with phenomena so similar as to render them incapable of being distinguished from each other, by the most accurate and experienced observers. But this circumstance does not stand alone; the two forms of disease are every where blended together, and run promiscuously into each other. Cases on record are frequent, in which a fever, which in the beginning was a mild remittent, has terminated with all the peculiarities ascribed to the bulam; and on the other hand, in which a violent bulam fever, has relaxed into a gentle remittent. We are, therefore, warranted in considering this disease as possessing the same general character, in all its forms and degrees of severity. If it is contagious in one place, it is so in another; and proofs that it is not extended by contagion, are fairly applicable to all places where the disease has prevailed." "If we examine the cases adduced as evidence that this is a contagious fever, we shall find, generally at least, that the subjects of them had been exposed to the same local causes of disease, as those were from whom they were supposed to receive it. Persons have visited their sick friends, have nursed them in their sickness, have watched with them, and mourned over them; and in their turn have taken the disease and died. The same thing has sometimes happened to those who have not entered the sick rooms, from only visiting the sickly

district. But on the other hand, when the sick are removed from the immediate circle in which they received the disease, do they carry with them the contagion, and spread sickness and death around them? If they do, let it be conceded that the yellow fever owes the extent of its ravages to its contagion; if they do not, we are warranted in the conclusion, that it is not a contagious disease. That they do not, is abundantly proved by the history of the disease, wherever its progress has been accurately detailed. Examples are very numerous of persons, who, after being exposed to the causes of yellow fever, have gone among their friends at a distance from those causes, and have had free intercourse with them, without communicating the disease to any one. In many instances, watering and other parties, which have been sent on shore from ships of war, without having any communication with sick persons on shore, have all been taken sick with yellow fever, after their return on board, and many of them have died, while no other person in the ship, although full of men, has been affected by it. Even when the sick are crowded together in hospitals, that are at a sufficient distance from the seat of the epidemic, they do not communicate the disease to their attendants. This has been abundantly proved in the hospitals established for yellow fever

patients in the vicinity of New-York and Philadelphia."*

The writer of the letters to the Board of Health, not satisfied with advocating the contagious character of yellow fever only, has so far amplified the doctrine of contagion, as to entitle himself abundantly to become the great head and leader *even of the contagionists.* In one of the letters, from which we have already given some extracts, after asserting that the disease of which the Van Nests died "exhibited, throughout, the symptoms of *the bilious remittent fever*," he proceeds, in the very next sentence, to inform the Board, that it was a continued fever; we shall give his own words: "At all events, it has been uncommonly rapid in its progress, and is attended with an uncommon degree of malignancy; and, as all *continued fevers* at this season of the year are liable *to be communicated*, I should recommend that measures be taken to have the apartments the sick have occupied, with their clothes, beds and bedding, immediately cleansed and ventilated."† It evidently appears, from his own words, that remittent and continued fevers

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* See 27th No. of North American Review, for a paper on contagion, and the fever of the last season.

† See Dr. Hosack's letter to the honourable P. A. Jay, Recorder, 5th September, 1819.

are one and the same thing, or that, in addition to the yellow fever being contagious, we have another contagious disease in the bilious remittent fever. How far the contagionists will thank this gentleman for so great a concession, we may imagine, after recollecting that this has long been one of the strong holds of their doctrine, under the protection of which they have valiantly held out against their opponents: for, whenever the yellow fever is proved not to be contagious, it is contended, by the *commercialists*,* to be only a remittent fever, and not the pestilence of yellow fever. This writer, however, seems determined that the yellow fever shall not escape the imputation of contagion; and therefore, lest it should by chance be proved to be nothing more than "bilious remittent fever, with an unusual degree of malignancy," to fasten, as soon as possible, the property of contagion upon the bilious remittent fever also, but which he has forgotten to introduce into his nosology, or has wisely delayed it, perhaps, until the next edition of that work, when we may also consistently look for the equally venerable doctrine of the contagious nature of intermittent fevers; and the further probability

* We ought rather, perhaps, to style them anticommercialists, for they are the deadliest foes of commerce.

of all diseases becoming contagious in the hot seasons of the year, however mild and free from contagion they may be during the winter. It is surely much to be wished, humanly speaking, that some, or all, of the other dreadful contagions, which have so long desolated large portions of the earth, in the course of their annual march, had been placed under the controling government of similar laws, and had likewise been peremptorily ordered to kiss the icy rod of winter.

Nothing is easier than to impress the public with the i ea of contagion ; the fear of sickness and of death is naturally associated with the law of self-preservation, and the mind readily yields its belief even to an imaginary principle of danger. Without meaning any insinuation, or to impeach the motives of the contagionists, we shall quote a paragraph from an excellent memoir, on the subject of contagion, by Dr. Potter, Professor of the Theory and Practice of Medicine in the University of Maryland, merely to show how foreign to the real nature of the subject are the incidents which sometimes determine the character of a disease in public estimation. The important bearing which it has upon our subject, and the lucid manner in which it is written, will furnish a sufficient excuse for its length :

"Notwithstanding the epithet *contagious* had been employed, time immemorial, to signify almost every fever which could be contracted by being in the place where it prevailed, it never was applied, in a personal sense, to any general disease, except the plague and the eruptive fevers, till it was suggested by Hieronimus Fracastorius; and no man, of a sound discriminating judgment, will decide, that his opinion was conscientiously expressed. Every circumstance connected with the case evinces a dereliction of principle in the author, the consequences of which are as deplorable, as its propagation has been general. This futile hypothesis was the offspring of a political incident, which originated in the conflicting interests of the rival potentates, Francis I. of France, and Philip V. of Germany. During the session of the memorable Council of Trent, in 1547, a spirit of dissension arose among the members of that august body: the question, whether the council should continue its session at Trent, or remove to the city of Bologna? was warmly agitated; and, for some time, the scale appeared to preponderate in favour of the former; but the interest of Pope Paul III. finally prevailed, and the council was accordingly translated to the latter. While the issue of the controversy was doubtful, and the Pope considered the completion of his views as

problematical, among the various other means employed to ensure success, he found, and enlisted in his service, a zealous and ingenious advocate in Hieronimus Fracastorius, a popular physician at Bologna. It happened, that in the most critical period of the contest, a fever appeared at Trent, which, although it occasioned little or no alarm in others, the occurrence was eagerly embraced by the Doctor, and wielded as a most powerful engine against his antagonists, and in favour of the Pope's interest. This disease, which would seem from his own account to have been a common *typhoid* fever, was painted in the most terrific colours his imagination could invent, and made the basis of a work which represented it as *contagious* as the small-pox, one which none could approach with impunity. He represented it as having a peculiar attraction for noble blood, and thus struck a panic through the council, overwhelmed the emperors' delegates and the Spanish bishops, and thus the Pope's party triumphantly sat in council, in his own city of Bologna. This stratagem, though evidently a *ruse de guerre*, is a remarkable example of the incalculable consequences that sometimes flow from the most trivial incidents. The delegates to this illustrious council were no less dignified as philosophers than distinguished as theologians; they were powerful as men, indepen-

dent of that influence with which their sacred characters clothed them; but they were not *medical* philosophers. They returned home deeply infected with this *fatal* error, which has slain its thousands, and tens of thousands, and thus perpetuated it throughout Europe. Previous to the dissemination of this hypothesis, of febrile contagion from this prolific source, the nations of Europe knew no fears from the imaginary introduction of epidemic diseases, except the plague and the small-pox; but it follows, as a necessary consequence to the propagation of such a sentiment, that these commercial impositions, under the several forms of *quarantine*, *lazarettos*, and *even banishment*, followed in the melancholy train of accumulated aggravation, and still continue, to the disgrace of civilized man, and often to the infinite embarrassment, and sometimes the ruin, of the enterprising and industrious merchant."

From this it would seem, that for the accomplishment of private views, religion has been made to consecrate the doctrinal errors of contagion; and that the fears and credulity of mankind have subjected them, together with the commerce of the world, to the successive systems of futile and oppressive personal and naval quarantine. Such systems, when once established, are with difficulty abolished; for they are countenanced and upheld by governments from a va-

riety of circumstances, and among others, for the purpose of providing for their favourites, and increasing the number of their dependants; and it has always been the interest of these to keep up the public delusion. Hence the clamorous advocates of *importation*, have oftentimes in this, and invariably in older and more corrupt governments, succeeded in obtaining health-office *appointments;* and by promoting the interests of needy expectants, volunteering their services in pursuit of contagion, and ready to distort or imagine facts, have kept alive the public inquietude.

It has been observed as somewhat curious of the doctrine of contagion, "that it should have been first authoritatively introduced and propagated by the Pope and the Inquisition, in the darkness of the sixteenth century; subsequently adopted and acted upon, first by the Venetian oligarchy, and afterwards successively by other despotic governments of Europe; and that it should be now upheld, in this country, as well as in other Christian communities, not by facts and arguments, but by an unusual and extraordinary concurrence of influences. It is a remarkable fact, in farther proof of the opposition, which, since the first promulgation of the doctrine, has been always made to free inquiry upon this subject, that in 1603, an order was issued by King

James I. "strictly prohibiting all ecclesiastics and others, from publishing an opinion that the plague was not infectious, or that it was a vain thing not to resort to the infected." And, within these twenty years, we find, that Don Rodriquez Armesto, an officer of the Spanish navy, and keeper of the royal observatory of the Isle of Leon, for having endeavoured to show that the epidemic of Cadiz, in 1800, depended upon atmospheric and local causes, was arrested on a charge of having diffused false, dangerous, and *seditious* opinions, and compelled to subscribe a formal retraction of them, after his work had been licensed as usual, and although his conclusions were deduced principally from accurate meteorological observations. Many more facts of a similar description might be stated; as the banishment, for instance, of one physician from Malaga, and another from Carthagena, for having avowed the same heretical opinions; all tending to show how uniformly arbitrary power has been on the side of contagion, and the doctrine of contagion on the side of arbitrary power."*

We advert with regret, to these mortifying truths, and feel their humiliating application even to ourselves. Hereafter, when the doctrine of

* See specimens of systematic misrule by Charles Maclean, M.D. London, 1820.

contagion of yellow fever shall be completely exploded, we shall have frequent occasions to reflect with surprise and horror upon the circumstances of cruelty and inhumanity that have been suffered to take place, and have even been justified by an *enlightened, humane, and inquisitive* people, under the governing influence of the appalling doctrine of contagion. It is but a few days since our own city, by direction of its Board of Health, furnished an example of the inconsistent errors, and cruelties of infatuation, and false doctrine. Within a year after having been themselves the *avowed* witnesses of the non-contagiousness of yellow fever, have we quietly seen a fellow creature, and a stranger in our city, snatched from the bed of sickness, and hurried to the quarantine hospital, a distance of five or six miles; where, according to the doctrine of importation, the *contagion* of yellow fever exists throughout the season. Every plea of necessity was wanting to justify it even to ourselves, for the atmosphere of the sick man's residence, was declared to be *pure*, and it was publicly admitted that there was no *risk of its spreading*. Why then was he immersed in the quarantine atmosphere of *contagion*, and the dying moments of the man thus wantonly agitated? If it were by the advice of their medical council, it was an act of the most glaring inconsistency, after the very explicit

opinion he had already given; and if it were done by the Board, independent of their official adviser, it was, to say the least, an unwarrantable stretch of power. It is no excuse that there was no other place to which he could be sent; if such removals are necessary, other and more proper places *ought to be ever ready* for the reception of the sick; for, agreeably to the principles of the contagionists, it is little less than burying one alive, to send him to the *pestilential* atmosphere of the quarantine ground. It certainly cannot be an innocent act, to send an individual sinking under disease, to such an atmosphere, if the risk to the city of New-York is so great, from persons *only clandestinely communicating* with that place, as to call for a penal statute to prevent it. Besides, there is a chance, and it is full as great as the risk of contagion, of a person being sent there who may not have the yellow fever, and who, if the doctrine of contagion be true, would thus be exposed to the imminent risk of contracting the disease. But a few days since, a sick person of the name of John C. Williams, was reported to the resident physician as having recently arrived from Philadelphia, whereupon he "immediately proceeded to the place designated, and found Mr. John C. Williams, who informed me that he had been just seized with a severe pain in his head, back, and limbs, attended with a sense of great

distress about the region of the stomach, together with giddiness and blindness, rendering him altogether incapable of walking. He further stated that he had arrived in the city from Philadelphia the day before, and had in a very unworthy manner, obtained admission into New-York by reporting himself from *Trenton. I instantly conveyed him* to the health office boat at White-hall, to be taken to the quarantine ground;"* where it is said he neither carried the disease, nor contracted it; and that he had not been in Philadelphia;—on the 28th, the health officer reported that he had absconded.† As there may be persons hereafter, not so fortunate as to escape from the *contagion* of that place, if they should unluckily be sent to the quarantine, we would recommend to their attention, the train of symptoms which so rapidly translated this man to the marine hospital; especially since it has been *publicly announced*, that others also have been as *unceremoniously* subjected to the same transportation, and obliged to forego an immediate return. "In that case, Dr. Hosack consulted the security of the city, *which is committed to his care*, by sending Williams to the quarantine, as we understand he has

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* See Dr. Hosack's letter to the Board of Health, August 25th, 1820.

† Williams it seems, was merely drunk, or as one of his townsmen has described him, had the blue fever, not the yellow.

done several others, *without waiting for the developement of the disease, or the causes from which it may have proceeded.*"*

We have already seen, that no unequivocal instance of the disease being propagated by contagion, had come to the knowledge of this, or any of the other Boards of Health, which reported the progress of the yellow fever during the last season; and we have also seen that the disease has been more than once mistaken by the *official medical organ* of the Board of Health of this city, who reported his immediate predecessor in the office, as having *confounded* the bilious remittent and the yellow fever; and who long since, charged another and very distinguished predecessor in the office, and one who it is admitted was profoundly skilled in that disease, with mistaking jaundice for yellow fever. If then the chances of mistaking the disease, are so much greater than the risk of contracting it in this city, by contagion, are we not bound to abolish the cruel practice of sending to the quarantine, a person who is suspected of having the yellow fever? since the probability of his not having it, far exceeds that of his communicating it, especially too, when we recollect the infinitely greater danger attendant upon exposure

* See the Evening Post of August 29th, 1820.

to the *permanent and concentrated contagion* of the quarantine ground, from whence that *unquestionable case of contagion* reached our city on the 13th September, 1819, and which was contracted "in the transaction of public business at the quarantine hospital, during the illness of the late health officer."*

The case to which we have alluded as having been sent to the quarantine ground, was reported on the 17th August, 1820. The person had recently arrived in this city from Philadelphia, and was ill at the corner of Broad and Front streets. The resident physician stated that "the patient is situated in an *airy apartment*, in a house very much *insulated*, and from which, with the precautions employed, the disease is not likely to be communicated. In all other respects, I am happy to add our city is unusually healthy."† And yet this harmless sick stranger was immediately conveyed with his bed, bedding, clothing, &c. to the hospital at quarantine, and on the next day a proclamation *was issued by the mayor, prohibiting for thirty days*, all manner of intercourse with the city of Philadelphia. In the course of ten days afterwards, however, at the instance of the

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* See Dr. Hosack's letter to the Board of Health, dated 13th September, 1819, and also his letter of the 14th.

* See Dr. Hosack's letter to the Board of Health, 17th August, 1820.

good people of this city, who had already grown weary of the restrictive system, and were threatening to lose their temper, as well as patience, the term of non-intercourse was reduced to ten days. The official adviser of the Board, we presume, was consulted on both these occasions; for we can hardly suppose that they would turn away from the advice of one who has the undisputed power of sending people to the quarantine hospital, *that dreaded receptacle of contagion*, whether they have the yellow fever or not. The public "have no idea that a resident physician should stand speculating on the precise nature of the disease,"* since he has the power, and it is his duty, hit or miss, to pack it off at once; and such authority, if properly vested, might be respected in the body of the proclamation.

We have no doubt that a signal change is soon to take place in the health laws, and we expect it to arise out of the entire revolution of popular opinion, respecting the nature of yellow fever. We have carefully attended to the evidence of the importation of it into our city the last season, and after deliberately weighing the case of every vessel which has been charged with introducing it, we are not satisfied that the poi-

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* See the Evening Post of 29th August, 1820, for an editorial article.

son of a specific disease, which cannot be generated in this climate, has found access to our city through our commercial connexions. On the contrary, we are compelled to yield our belief to the weightier evidence of its domestic origin, especially that which is derived from the last season, which, it appears to us, has been peculiarly auspicious to the growth of sound opinions and deductions, respecting its nature; and hence we do not conceive that it can justly be considered an *atrocious libel* on the country, to advocate the possible formation of yellow fever in the climate of the United States. We do not hazard any thing in saying, that we are supported in these opinions by the concurrent belief of three-fourths of the medical profession of this continent, who have seen the disease or attended to the evidence of its origin, which our country has already furnished. We extract the following as expressive, it is believed, of the professional opinion in Boston on this subject:—"In many places where the yellow fever has appeared, there has not been the least evidence of its importation; and, in most of them, the attempts to point out the time and manner of its importation have been incomplete and contradictory. How different is this from the progress of the small-pox, or any other disease which is avowedly contagious. This fever too, in temperate cli-

mates at least, prevails only after a series of such weather as is the most unfavourable to vigorous health, and generally begins in those parts of cities which, from their filthiness and want of ventilation, are peculiarly suited to the production of putrid exhalations. Neither is the progress of this fever, through a town, such as might be expected from a disease which is propagated only by contagion. The friends of those first affected, who are most ready to visit them in their sickness, are not likely to be limited to their immediate neighbours, but to reside in various sections of the town: in a contagious disease, therefore, we should expect to see new cases not only arising in different and distant places, but becoming themselves new centres of diseased circles, from which it is rapidly extended to many others. On the contrary, except in some towns in which, from their local situation, every part is equally exposed to the action of marsh effluvia, the yellow fever creeps from house to house, and from street to street, as the influence of the putrid exhalations which cause it, is gradually extended."* No instance has ever yet been adduced of the yellow fever extending itself beyond the suburbs of a city, excepting

* See North American Review

where the deleterious effluvia of marshes and local filth, or the noxious influence of the season, has caused more extended and general sickness, and this occurring independent of any communication whatever with the diseased city or its inhabitants. The fact, also, of the disease disappearing, not gradually, but oftentimes abruptly, at the time of many persons labouring under its most aggravated forms, is an additional evidence of its non-contagious nature; for, were it contagious, it would not cease in this way, from the mere influence of temperature, but would continue to exert the property of communicating itself, till it ceased from the want of subjects on which to act; nor would it be possible to predict, with so much accuracy as is often done, the time of its disappearance, if it depended upon a *specific poison*, emanating from the persons of the sick.

Notwithstanding all the absurdities that have been uttered and printed, "respecting the inoculation of the atmosphere," the spark which alone is wanted to kindle the destructive pestilence, or "the occasional virulence of the contagion of yellow fever," the contagionists themselves, or at any rate, the *moderate and respectable* part of them, have admitted that the disease is not contagious in pure air, and ascribe it to the poison being too much *diluted* in the atmosphere; from whence it

follows, that it would be impossible to introduce it, however contagious it may be, if the condition of the atmosphere only be properly attended to; and if we live in a climate altogether incapable of generating it, de novo, it would not seem to be a difficult matter to preserve that sufficient degree of purity of atmosphere to render the contagion inert. To us there appears to be nothing falacious in this reasoning, but, on the contrary, it creates a strong presumption that the doctrine of contagion is untenable in respect to this disease; and if on the contrary it be true, it presents a remarkable anomaly in regard to the whole catalogue of known contagious diseases. For it certainly is not a little singular that this contagion, which is so often reputed to be exceedingly virulent, is so easily destroyed; to be so quickly rendered innocuous by dilution in a pure atmosphere, and yet to be so frequently transported to a great distance, as from one country to another; to be concealed, inactive and harmless, for weeks and months together, and then suddenly to manifest itself by the most destructive virulence—these are circumstances which, we confess, appear to us irreconcileable with the doctrine of contagion in its legitimate sense, or with the logical import of the word; and we are by no means disposed to consider it as a mere difference of opinion, in regard to the use of words

only; but we view it as leading to very important practical distinctions, from which alone can an efficient and equitable code of health laws be deduced. If, after all the difference of opinion that has appeared on the subject, it should be found, that in those very places from whence we are so often supposed to derive it, and in what has been called the latitude of pestilence, the yellow fever is not considered by judicious, observing, and experienced physicians, to be a contagious disease; would it not imply the delusion of fear, or an unreasonable stretch of belief, to admit that *out* of the latitude of pestilence, and in a country *incapable* of producing it, it should first become contagious; this would be admitting that the diminished activity of the disease was the cause of its contagion. The non-contagiousness of yellow fever has long been contended for, by many of the most distinguished physicians of the West Indies; and proselytes to this opinion are daily increasing, in the very birth places of yellow fever. In support of this assertion, we might adduce numerous authorities; but shall content ourselves with the opinion of Dr. Le Fort, which has been formed partly from the yellow fever of the last season, and in one of the very places from whence it is said the fever was brought into Boston and New-York.

In a prize memoir on contagion, distinguished by the medical society of Paris, he included the yellow fever as a contagious disease; but since that time, having had an opportunity of seeing and treating it, he "became entirely convinced that it was *not contagious*," and derived his opinion from the following circumstances. 1st. "There is not one example of the yellow fever having been communicated *by contagion*, to any patient, convalescent, or person employed in the hospital of Fort Royal, (Martinique) where during one year, from July 1st, 1818, to July 1st, 1819, six hundred and sixty-seven persons have been treated for that complaint. 2dly. In many merchant vessels from France, which arrived at Fort Royal in the fall of 1819, several persons were attacked with the disease, without having had any connexion with the other vessels, and before they had communicated with the shore. 3dly. During the first six months of 1819, the yellow fever sporadically attacked the troops stationed in the town and arsenal at Fort St. Louis, and also the marines on board of merchant and government vessels, yet neither had had connexion with infected persons, nor did any of them communicate the disease to their comrades."*

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* See New-York Medical Repository, for June 1820.

The judicious and sensible remarks of this physician, are entitled to peculiar consideration, from the circumstance of his acknowledged ability in Paris as a writer on contagion, and from his frank and candid confession, that a better knowledge and closer observation of the disease itself in the West Indies, have enabled him to forsake the errors of inexperience. He adds, "the numerous people who live between the tropics would also be subject to the yellow fever, if it was a contagious disease. They are exempt from it, because their moral and physical system is in harmony with the climate in which they were born; it is to that, and that only, they owe the privilege of exemption; and in the same way it is, that strangers, who have undergone a seasoning to the climate, (if I may be allowed the expression) weaken or blunt its influence. When they have spent some years in the colonies, they partake of the privilege of the natives; like them, they are generally exempt from the yellow fever. Such certainly would not be the case, if it was really a contagious disease; for I repeat, there is no general habit or mode of living which can prevent small pox, syphilis, and other contagious diseases." "I do not know any physicians worthy of the name, in the West Indies, who support or profess a contrary opinion. Dr. Peyre, formerly physician of the King at St. Domingo, and this

place, and Dr. Gaubert, now physician of the King at St. Pierre, do not believe in it; and those gentlemen have observed the disease for more than thirty years, on a pretty extensive theatre. Dr. Luzeau, who has been surgeon general of this colony five years, is equally convinced of its non-contagion," and again, "we should say that the question of the contagion of the yellow fever, which is yet pending in some foreign countries, is decided in this place."* With respect also, to Havanna, from which place we have so often been supposed to import the disease, we are enabled to give an extract from a letter of Dr. Frost, showing that in his opinion at least, the yellow fever is not contagious; he says, "I have been a resident practitioner of medicine in this city, (Havanna) and at Demarara, for fourteen years; I have been in the service of the United States navy as surgeon, one year of which time we were stationed on the coast of Surinam. At these different places, I have had many opportunities of making observations, as to the contagious character of the yellow fever; and I have never in a single instance been able to trace it, as originating from any communication with the sick, or from personal contact with another person sick of the

* See New-York Medical Repository, for June 1820.

same malady; always ascribing its origin to local causes; such as peculiarities of climate, miasms, &c."*

Having, therefore, as we believe, failed to discover the origin of our late epidemic, in the existence of yellow fever in the West Indies, and its importation to our own shores through the commercial intercourse of the countries, we have necessarily to look elsewhere for the sources of this calamity. After mature reflection, we find no other probable causes of it left for investigation, than those which have been denominated domestic; and these have very properly been divided into those of a general, and such as are of a local nature. Under the first is comprehended that kind of climate, which from analogy, is now thought to be necessary for its production. It is admitted on all hands, to be the endemic of tropical climates, and that a certain degree of heat is essential to its appearance as an epidemic. It is asserted, and we believe with truth, that it never has appeared beyond the 46th degree of latitude, and that its occurrence even beyond the 40th degree of latitude, has always been associated with a continuance for some time, of a heat approximating very nearly the 80th degree of Fahrenheit's thermometer. This degree of heat alone,

* See New-York Medical Repository, for June 1820.

however, is not productive of yellow fever, for its appearance is not witnessed, or the spreading of it observed, if a case of it be accidentally or otherwise introduced, unless the causes of a local, are superadded to those of a general nature; with the precise intensity, variety, and nature of these local causes, we are not as yet by any means acquainted; but, we have a strong presumptive proof, that all of them partake more or less of the miasmatic character; and that some of them are strong concentrated exhalations, nearly allied to those which produce the ordinary remittent fevers. How far it is requisite that they should be complicated with the agency of adventitious or accidental matters, or modified by the alternate influences of heat and moisture, and certain vicissitudes in the temperature of day and night, we cannot now determine; but we have little doubt, that as the attention of physicians shall be turned from the illusory researches on the subject of contagion, and more sedulously bestowed on the miasmatic origin of yellow fever, as developed by the agency of solar heat, and meteoric influences, that we shall look back on the obsolete doctrine of its contagion, with surprise, that it should so long have kept possession of the mind, to the exclusion of more philosophic principles of knowledge. Then too, will the doctrine of importation, with the present system of quaran-

tine regulations, be viewed as the melancholy monument of blind infatuation; as the removal of the council of Trent to the city of Bologna, is now, of the doctrinal errors of the contagiousness of fevers.

We have already noticed the boundaries of what was called the infected district, as indicated by the Board of Health, including Old-slip, and the parts adjacent. From Coenties-slip to the Coffee-house, and from Water-street to South-street, both inclusive, is principally made ground. It is in the recollection of persons, now resident in this city, that the tide waters of the east river reached nearly to Wall-street, and what was formerly the old ferry-house, is still to be seen in Broad-street, above Garden-street, and what was called Hanover-square, at the foot of William-street, was near the edge of the water. Great and Little Dock streets were parts of Pearl-street, and were the artificial margin of the East River, composed of logs, and promiscuously filled with every variety of materials. The progressive improvement of this part of the city has, in this way, formed a large proportion of Water, Front, and South streets. All this part is closely built up; many of the buildings are of wood, and are now much decayed; if the houses have yards, they are principally small, and all of them surrounded by wooden fences, and many

of these have long been in a state of decay. The surfaces of the yards, thus formed of an artificial soil, are exposed, with all the decaying materials of their inclosures, and the accumulating deposits, to the direct and reflected rays of the sun, and are excluded, by their situations, from the the natural agitations of the air. Very few of the houses, even in Pearl-street, within this district, have the means of carrying off the surplus or refuse water from the rear, excepting by troughs, which, in a great number of instances, pass through the cellars of houses in Water-street: these troughs are formed of wood, in some instances close, and in others open, running along the bottom of the cellars, or at an intermediate distance from the floor and the ceiling, according to the declivity of the ground: these become occasionally choaked, and are dripping or bursting, in a number of instances, in the houses themselves, or within a small distance of them. We have seen several of these troughs meeting in the cellar of a single house, situated within a few feet of the kitchen, sitting-room, and work-shop of a respectable tradesman, who has informed us, that they were extremely offensive as early as the month of April, and frequently, in warm weather, almost intolerable. The yards of many of the houses in Pearl-street are also extremely small, and unpaved, and sur-

rounded by wooden fences, which are successively going to decay; the ground exhibits a black mould, interspersed with a variety of matters, and exposed to that degree of heat which eventually causes decomposition and putrefaction. These troughs communicate with a large well, or with a sewer, running through the centre of Water-street, westerly, until it intersects a spacious sewer leading from Pearl-street down through the centre of Old-slip, terminating in the west corner of the slip; this end of it is visible at low water, as are also the corners of the slip, exposing a large quantity of filth to the sun, and causing a most noisome smell. At the junction of Old-slip with Pearl-street, near the other extremity of it, there was formerly an iron grating, from which such an offensive odour issued, that twenty years ago it was ordered to be covered closely with a flat stone, which has not been removed or taken up since that time; and it is said that the two persons, employed in altering the opening, and adjusting the stone, were taken sick. With this main sewer, there is communicating, from different streets and houses, a number of smaller ones. Over a part, and through almost the whole of this artificial section of the town, the tide occasionally washes or penetrates, and in cellars of some depth, the water appears in quantity, at the distance of several streets from

the river; indeed, at certain tides, this quarter of the town is in some measure inundated: one of these tides occurred during the last season, towards the close of the fever, and obliged the Board of Health to adopt "subsidiary measures, for emptying the cellars that were filled with water by the violent storm, and unusual tide, which occurred in September."* The virulence of the exhalations, causing yellow fever, appear, however, to have been almost entirely confined to a small part of that district, situated on the west side of the slip, between Water and Front streets, and covered principally with old wooden buildings, that have long been in a decaying state; these houses are destitute of yards, have small and close cellars, where are deposited a variety of articles more or less susceptible of decomposition, and exposed to the occasional influence of the tides: some of these houses are frequently occupied by a number of families, or resorted to by sailors, foreigners, and others, in the lower class of life, in quest of board and lodging, and the indulgence of dissipation and intemperance; they face the east, and receive the stagnant air and noisome smell of the slip and basin; while, from beneath the houses,

* See report of Board of Health, 25th October, 1819.

there issues an effluvia perceptible to persons above. This block of houses is also situated over, or adjoining to what was formerly called *rotten row*, in consequence, it is said, of sixteen or twenty Dutch ships, which had been engaged in contraband trade, having rotted and sunk here, pending a decision in the court of admiralty. By means of strong timbers, it is reported that houses were erected upon, and close to these vessels, and the intermediate spaces became finally filled with an indiscriminate deposit of all kinds of rubbish, offal, and corruptible substances. Large timbers, supposed to be the remains of some of these vessels, are now frequently met with in digging new cellars; and so loose, wet, and unsettled is the ground, that, in erecting new walls, they are made to rest on timber or plank, for the purpose of obtaining greater uniformity of settling. In some parts of this district, the contents of privies, after long and heavy rains, have been observed to filter through the earth, and become perceptible, even to the eye, in the adjoining cellar.

It appears from "a statement, &c. of the malignant yellow fever of 1819, by Dr. Pascalis," that "out of fifty-seven cases which occurred in the vicinity of Old-slip," more than thirty originated in the block of houses already alluded to, and within a few hundred yards only of Mrs.

Kavenaugh's house. The most of those who sickened and died, after removal to Fort Richmond on Staten Island, were from this block, as were those also, who were sent to Fort Stevens on Long Island. In the opposite block, on the same side of the slip, and to the north of Water-street, eight or nine persons were attacked, to the most of whom it proved fatal; at this time, public alarm had attained its greatest height, owing in part, to the characters of some of the individuals who had fallen victims to the disease. The remainder of the cases occurred in different parts of the made ground of this district, or in situations exposed to unwholesome exhalations from damp cellars, ill ventilated yards, and houses, and sewers, and troughs for the carrying off waste water, &c. It will probably be admitted, that a sufficient number of local circumstances existed within this district, to cause impurities in the atmosphere, and to injure the health, if good air be necessary to health; and to produce disease, if a contaminated or impure atmosphere is ever productive of such effect. That the air was polluted and offensive, is now a matter of notoriety, as is evident from the fact, that the Old-slip was included with some other places, and *presented as nuisances by the grand jury* of this city on the 18th September, *three weeks* after the first appearance of yellow fever; they remarked, "that

while such *prolific sources of fevers* are suffered to exist, no precautionary measures for the health of the city can be efficacious in preventing disease, or in arresting its progress." We have already stated that previous to the appearance of the fever, both the duration and degree of heat had been unusually great, and that the last three or four weekly bills of mortality, showed a great increase in the number of deaths. We have understood that some weeks prior to the death of Mrs. Kavenaugh, several persons were suddenly seized with violent sickness, and died with affections of the head after a short illness; and that these persons resided at, or in the immediate vicinity of Old-slip, or were in the daily habit of visiting that place.

We have been informed by Dr. F. U. Johnston, late house physician of the New-York hospital, that from the 22d June to the 5th July, of the present year, 1820, a number of persons had sickened in a building No. 23 Old-slip—seven of them were received into the New-York hospital, and there cured. Of these, six were affected with mild grades of the bilious remittent fever, and one with a severe form of that disease. Dr. Johnston was informed by the woman of the house, that several other persons were taken sick about the same time, and removed from the house to different parts of the city. It was in this building

that Mrs. Kavenaugh sickened, in 1819, and died on the 29th August, after a few days illness. This, it is believed, was the first case of yellow fever, though not reported to the Board of Health, that attracted particular attention the last season.

The general mortality of the disease of 1819, does not appear to have been as great as in former seasons of the yellow fever. The first ten or twelve cases, however, proved fatal, and excited sufficient alarm to cause the desertion of the district, either voluntarily or by direction of the Board of Health; by which means, there was not only a stop put to the growth of nuisances, and the accumulation of impurities, but an actual diminution in the offensiveness of the effluvia, from the freer circulation of air, and the means employed to purify the proscribed district; hence we perceive the reason why the disease did not extend beyond the barriers erected by the Board of Health. The committee in their report to the Medical Society of this city, very pertinently ask, "if it," the imported contagion, "was retained in the clothes, so as to have been communicated by washing, why was it not imparted to those who handled them, or were on board of the infected vessel?" and again, "why did the fever continue to prevail in Old-slip, after these vessels were removed? Why was it restricted to such narrow limits? Why did it not surmount the

bounds erected by the Board of Health, and diffuse its contagious pestilence over the whole population of the city? These queries present difficulties which we cannot reconcile with the theory of exclusive importation."

Had the inhabitants been allowed to remain, and no measures of cleanliness been resorted to, this district, it is probable, would have been a scene of the most dreadful pestilence, and in addition to the number of its immediate residents, who probably would have sunk under it, the growing influence of its destructive atmosphere would have been felt at a much greater distance; and *the atmospheric poison* would have been confounded, in the public mind, with the extension of the disease by *contagion*. The Board of Health, therefore, in addition to the credit of active benevolence, deserve that of having contributed very largely by their measures, to establish the important question of the *non-contagiousness* of yellow fever. As the season advanced, and the district became purified, the malignancy of the disease "abated, and recoveries became less rare;" and the Board of Health add, that "it may be worthy of remark, that of the sick removed to Fort Stevens, notwithstanding the fatigue of their removal, a greater proportion recovered than of those who remained in the city; of thirteen sent there, seven died, and six

recovered." From the 1st of September, to the 13th October, the time of its disappearance, upwards of seventy cases of yellow fever occurred, some of which were not reported to the Board of Health, and about fifty of them terminated fatally.

Symptoms of great reaction or high excitement, succeeding to a state of depression, were frequently observed in the late fever of this city, as also in that of Boston and Baltimore, and occasionally to such a degree as to call for the use of the lancet. When employed early, it appeared to moderate the violence of the febrile symptoms, and to lessen the severity of local pains. In some cases in this city, twenty ounces were taken with advantage. The application of cupping glasses, to the temples and back of the neck, relieved the pain of the head, and intolerance of light, and diminished the redness of the face and eyes. In Boston we observe, "that blood-letting was requisite in the majority of cases; but in some instances, evacuations from the alimentary canal were alone admissible;"* and "repeated venesection became necessary,"† oftentimes in Baltimore, and occasionally in

* See New-England Journal of Medicine and Surgery, for Oct. 1819.
† See the American Medical Recorder, for April 1820.

Charleston. In the latter place, however, many physicians early laid aside the use of the lancet, in consequence of its not being successful to the extent formerly used, and in some instances appearing to be injurious. We have been informed that bleeding was often resorted to early in the disease which prevailed the same season at Havanna, excepting in those cases where a discharge of bilious matter, from the bowels, spontaneously occurred; this was allowed to continue, and was encouraged with advantage to the sick. The remedies which appear to have been the most successful in the treatment of this fever, in every place where it appeared in our country the last season, are cathartics, and not unfrequently those of the most active character, on account of the torpor of the bowels, which was sometimes observed to be very obstinate, requiring the frequent repetition of large doses to produce any effect, while at other times they appeared to act with nearly their usual certainty. The irritability of the stomach would, in some instances, cease altogether, after the operation of a powerful purgative; and if early administered, it would sometimes happen that the restlessness, pain of the head, back, and limbs, would subside, the complete development of the disease would appear to be prevented, and something

like an intermission would take place, or a train of symptoms followed resembling an ordinary remittent fever. The continued use of these remedies, for several days in succession, adapted to the condition of the bowels, and other symptoms, often removed the disease. The cathartics, most commonly employed in this city, were large doses of calomel and jalap; the various saline purgatives, rhubarb and magnesia, or rhubarb and carbonate of potash or soda: great success attended the use of this last remedy at Fort Stevens, in conjunction with wine whey, Virginia snake-root street, &c. and the undiluted compound tincture of bark, given frequently, in the quantity of a teaspoonful at a time, was observed to compose the irritability of the stomach. Although these latter mild remedies acted with sufficient quickness and efficiency at that place, they were supposed to be altogether inadequate in the city, where much stronger medicines were frequently given, and repeated several times before the bowels were moved: the symptoms were more or less dangerous, and increased in violence, in proportion to the degree and duration of the torpor of those organs.

We have been informed by Dr. Campbell, that the practice which he believes to be most successful in Charleston, consists of "active doses of calomel and jalap, continued until the patient

is well evacuated, succeeded by small doses of calomel to produce an alterative effect on the liver, which appears to be the organ most concerned in this disease." This is accompanied by local applications of an irritating nature, such as blisters, sinapisms, hartshorn, and rubifacients to the stomach, head, and extremities, and generally at, or near to the seat of pain, wherever it may be located. These were often found to remove the soreness and irritability of the stomach, and obviated, it is thought, the accession of black vomit. All unite in recommending these remedies, as calculated also to remove the affections of the head, for which purpose, cold water has likewise been employed, especially to remove the delirium. This was in some cases an extremely grateful application to the whole surface of the body, when affected, as was sometimes the case, with a most distressing, pungent, and burning heat; an abatement of the thirst, headach, and pains of the bones, with a more natural sleep followed, and in some there was an evident tendency to perspiration, in consequence of its employment. We are told that "cold applications externally, and vesication, were highly beneficial at different stages"* of this disease in Boston, and the same remark is made by Drs. Campbell and Irvine of the disease

* See New-England Journal of Medicine and Surgery.

of Charleston. After the bowels were freely opened, hot lemonade, with Henry's calcined magnesia, lime water and milk, lime water magnesia and laudanum, citrates of ammonia, soda and potash, with aromatics, and small quantities of cold drinks, were found most successful in quieting the stomach.

With regard to the use of emetics, a difference of opinion appears to exist among physicians of the same place, as well as of the different places of our country where the disease appeared in 1819. By some they are considered as always doubtful in their effects, and sometimes decidedly injurious; while others have commended them as valuable remedies if early administered. This difference of opinion may be owing to the different periods of the disease at which they have been employed, a few hours only being sufficient to cause a remarkable change in the state of the disease. Dr. Irvine contends, that if mild emetics are selected, and resorted to early, they prove serviceable by unloading the stomach of its bilious and vitiated contents, which if suffered to remain, may increase the irritability of that organ; and in Boston we learn that "most of the patients had irritable stomachs, and it was requisite to limit them as to the quantity of their drinks. This difficulty was not augmented, however, but rather *prevented*, by the use of emetics at the

commencement."* As yet, but little experience has been had here of this remedy, and we cannot learn that any of the physicians of this city had immediate recourse to it, though the effect of vomiting was not unfrequently produced by the nauseating purgatives employed, and which were at times intentionally rendered still more nauseating, by additions of small portions of antimonial and other emetic medicines. We are inclined to place much confidence in these mixed purgatives, consisting in part of calomel, given on the invasion of the disease, or as soon after as possible. In this city, generally speaking, the antiphlogistic plan of treatment was adopted, and for the most part enforced throughout the disease. The most beneficial of all the evacuant measures resorted to, were those of a cathartic nature; it is questionable, perhaps, if any benefit was derived from the use of sudorifics, any further than those of the class of agreeable diluents, of saline and effervescing draughts, might serve to quench thirst, and allay the consequent restlessness and irritation of the skin. As the disease advanced, stimulants and cordial nourishment became necessary, but we believe that this was the case in a very few instances only; for we have understood that

* See New-England Journal of Medicine and Surgery.

symptoms of high febrile excitement, calling for the repetition of evacuants, sometimes followed the eating of a small quantity only of animal food. "Opiates often gave great relief" in the fever of Fort Hill in Boston, "but it was sufficient to give very small doses." After the bowels were freely opened, and the febrile heat had subsided, anodyne remedies were found elsewhere also, to be particularly serviceable in promoting a free and pleasant state of skin, in quieting the peculiar irritations of the system, and in procuring comfortable rest. We recommend, as particularly deserving of attention, the strong condemnation of the mercurial plan of treatment, so earnestly set forth by Dr. Irvine. He does not appear to object to the use of mercury as a cathartic, although he decidedly prefers the occasional use of saline purgatives. It is the sialagogue effects of that mineral which he reprobates, being oftentimes difficult to excite, even when given very freely, and when produced, being inadequate to the removal of the disease; its effects taking place, according to the opinions which have lately been advanced by several physicians in Great Britain, rather in consequence of the subsidence of morbid action, than as the cause of the decrease of that action. We have long since acquiesced in the truth of these opinions, and believe that the irritable stomachs of yellow fever patients are

aggravated by the employment of that remedy, except when given with a view to its peculiar cathartic properties, and its influence in correcting morbid secretions, all of which may be obtained exclusive of any effect upon the salivary glands, or irritation of the stomach. He remarks that "bark, wine, and stimulants of all kinds do infinite harm,"* and that after trying the plans of *mercurialization* and *super-venesection*, and failing with both, as might reasonably have been expected at this day, he had recourse to a method which he now approves and recommends; consisting as we have noticed, of emetics in the early stage, the occasional and very cautious use of saline purgatives, the application of blisters and irritants to the skin, taking care not to irritate the stomach; and in the second stage, when that organ becomes irritable, to quiet it by giving two or three grains of sugar of lead uncombined, every two or three hours; increasing or diminishing the doses, and the intervals of their administration, according to the circumstances of the patient. Dr. Campbell writes, that "a practice has been introduced by my friend and preceptor, Dr. Benjamin B. Simmons, which promises to be very successful. It is to establish an action which diverts from the stomach, and *in every instance* in which

* See Irvine's Treatise on the Yellow Fever of Charleston.

this local action has been produced, the patients have recovered. Immediately after the patient has been well evacuated, he gives small doses of calomel, with a quarter of a grain of powdered cantharides every two hours, until a strangury is produced, while at the same time, the mercury has a chance of exciting another part of the system. It is surprising how completely the stomach is relieved when this action is produced, and how readily it receives and retains such things as are administered. In my own case, and in several that I saw, this plan of treatment was pursued, and with the happiest success. I have known as many as eight grains of cantharides to be given before the proper effect was produced. Unless the strangury is intolerable, no attempt should be made to check it. I am inclined to think that this fact is highly worthy of your attention, as it will no doubt be found by further experience to be a valuable remedy."

That nuisances and deleterious matters may be brought in vessels to our wharves, and add so much to the existing impurity of the air as to engender fatal forms of disease; and also that, even independent of the existence of a directly noxious atmosphere in our slips, vessels may arrive in so foul a state as to communicate disease to all those who may visit them, though the

vessels may not have come from places where the yellow fever has prevailed, has long been contended for by physicians, both here and elsewhere, as decidedly as they have opposed the commonly received doctrine of the importation of the *contagion of yellow fever.* With this view of the subject, and which we believe to be correct, the causes of yellow fever may be as strictly local on shipboard, as in the filthy docks and streets of a city; and if it be correct, it must suggest new regulations for the preservation of the public health, instead of abolishing quarantine laws altogether, which the contagionists have falsely argued would be the result of surrendering the doctrine of contagion. The truth of this assertion, however, is fortunately maintained by as little unequivocal proof as is the doctrine of contagion itself.

It has been the studied policy of the contagionists, to misrepresent the views of their opponents, and as they were aware of the great reliance of the public on the enforcement of quarantine laws, for the preservation of the health of commercial cities, they have artfully endeavoured to establish the belief that their opponents intended to abolish the whole system of quarantine, and thus to expose the community to danger from the introduction of disease. The non-contagionists having proved that there was no danger of the yellow

fever being communicated by the sick, and consequently none whatever to be apprehended from persons who were not ill of that disease, argue, and we think correctly, that the quarantine laws are predicated upon the supposition of a thing which has no existence, and must, therefore, be inadequate to the prevention of a disease which is otherwise contracted; whereas, if they had been founded upon the principle which is conceived to be abundantly established, of uncleanly and foul vessels being capable of engendering malignant diseases, modified by the character of the season, an efficient system would have been formed, without the necessity of its including a personal quarantine, that now serves to keep alive an erroneous idea of danger, the consequences of which, are oftentimes shocking to humanity. We shall here advert to the language of a very able and decided advocate of the domestic origin of yellow fever, and see how far it is from contemplating the removal of quarantine laws.

"The only object to which the restrictions of quarantine are now applied, is to guard against the introduction of disease by contagion. We have seen that the principal object to which they ought to be applied, is to prevent the introduction of noxious matter from vessels or their cargoes, which are in a foul and unhealthy state.

The application of quarantine laws, ought not, therefore, to be regulated in reference to the *places* from which vessels arrive, but by the *state* in which they arrive. There is no cause for detaining a ship, on account of the danger of yellow fever, which is itself in a pure and healthful state, from whatever port she may have sailed, nor however sickly that place may have been. On the other hand, no ship that is foul and offensive, or that has a cargo in a putrid state, although the place from which she sailed, or the persons on board *be ever so free from sickness*, ought to be permitted to approach the town, until she has been thoroughly cleansed and purified. Yet in this case, there is no good reason for detaining the passengers and crew in quarantine. Whatever danger they may have incurred of being attacked by disease, even after they leave the ship, there is no fear of their transmitting the danger to others. The precautions against infection from the impurities of vessels, and the putrefaction of the perishable parts of their cargoes, ought not to be limited to the restraints at quarantine. Notwithstanding the utmost vigilance of health officers, vessels will sometimes be permitted to pass without suspicion, whose cargoes, or some parts of them, are in a state liable to produce disease; or by a long detention on board, some articles may

have become putrid after having passed a sufficient examination at quarantine. There ought, therefore, to be a rigorous system of inspection, during the summer and autumn, into the state of every ship which has a cargo of a perishable nature, while she is discharging. In this manner, the danger, when it exists, will be detected, before it can have extended to any considerable number of persons, and will be promptly removed."*

The great length of this article, prevents us from inserting the whole of the excellent observations of this writer on the subject of quarantine laws. We must content ourselves with recommending them to the attention of every Board of Health in the United States, as the outline of an infinitely more efficient system than has ever yet been adopted.

The other means of prevention consist of filling up the slips with wholesome materials to beyond low water mark, facing as many of the docks in that part of the city, as is practicable, with square stone, similar to the docks of Great Britain, which should be so executed as to preclude the admission of the tide waters through the present soil into the cellars of houses and stores; the clearing of foul, damp cellars, and filling

* See North American Review, No. 27.

them up to a sufficient height with good sand or gravel; cleansing and filling up old cisterns and wells; scraping the yards, and covering them with paving or flagging stones; the removal of old decayed fences and timber, and pulling down the already mouldering remains of some wooden buildings, so as to give a freer circulation of air to those spots which are now very much confined, or almost entirely fanned by the atmosphere of the slips; keeping the sewers clear, improving the present discharge of waste water from Pearl to Water-street, and elsewhere; the frequent inspection of houses; the washing of the streets, and preventing too many vessels from entering the slips, or approaching the wharves; and in the formation of artificial ground, to avoid the use of putrescent materials, by the exclusive employment of sand or gravel. We do not entertain a doubt that these measures would prevent a recurrence of the disease as an epidemic in any part of our city.

FURTHER REMARKS

ON THE

CASE OF LIGATURE

OF THE

ARTERIA INNOMINATA.

BY VALENTINE MOTT, M.D.

In my first communication of this case, in the Hospital Register for 1818, it is stated page 50, that "*the subclavian artery internally and externally to the disease, was pervious.*" To this it may now be added, that where this artery opens into the ulcer, left from the wound of the operation, it appears not only pervious, but of the natural size, and the coats free from any diseased appearance. Externally towards the axilla, the artery is somewhat enlarged in diameter, but exhibits no appearance of disorganization of its coats, either externally or internally. About an inch from the ulcer, or just as the artery has passed between the scaleni muscles, there is an irregularly shaped eliptical opening upon its upper side, large enough to receive the extremity of the fore-finger. The edges of this opening are jagged

and uneven, and the surface of the artery internally, is of a brownish yellow colour, to the extent of half an inch on the inside of the opening, and more than an inch towards the axilla. The internal coat of the artery has a rugous or puckered appearance; separated a little from the muscular coat, very friable and evidently in a degenerated state. This opening of the artery, communicates directly with the anterior extremity of the sac which contains coagula, and upon removing these, the surface of the sac is seen puckered or thrown into a great number of little folds, giving it at first sight, the appearance of containing a number of holes. This account is taken from the morbid parts before me, and the preparation has been seen and examined by Dr. Post, Dr. Hosack, Dr. Stevens, Dr. Watts, and others, who have authorized me to state that they are satisfied as to the nature of the case.

TWO CASES

OF

UNUNITED FRACTURES,

SUCCESSFULLY TREATED

BY

SETON.

BY VALENTINE MOTT, M.D.

CASE I.

Stephen Hammond, aged about thirty-five years, was admitted into the hospital with lameness, in consequence of a fracture of the leg about seven months since. Upon examination, the tibia was found ununited, and to admit of very free motion between its ends. The fibula was entire, and the patient believed it never had been broken. From the account which he gave, it appeared that he had been subjected to the proper treatment for the restoration of a broken bone, but he stated that it never showed any disposition to unite, under the course which was pursued.

As his general health was not good, he was put upon tonic medicines and invigorating diet, and

I directed that a stimulating plaster of gum ammoniac and mercury should be applied over the part, with the many-tailed bandage; and splints to reach above the knee and below the ankle, and to be very firmly secured; and I advised him to walk upon it with the assistance of his crutches, as much as the pain would any way permit, informing him that the object in wishing this exercise, was to inflame and irritate the ends of the bone; and that he must not desist, even though considerable pain should accompany it. This was persevered in for several weeks, but finding little or no pain to attend it, and no appearance of inflammation in or about the fracture, and no hope of amendment, it was discontinued. Blisters were next repeatedly tried, but to no purpose. Very powerful shocks of electricity also, were passed in different directions through the part, but they produced no beneficial effects.

A seton was next introduced: this I did by making a small incision upon the outside of the tibia, down to the fractured ends, then passing between the bones the stillette of a small trocar, and pushing it out on the opposite side, the seton was readily introduced with an eyed probe.

In a few days considerable inflammation and pain supervened, which required emollient poultices and the antiphlogistic treatment to subdue. This was soon followed by a copious discharge

of matter from the seton, and a collection of pus on the anterior part of the tibia, which was evacuated by a small incision. After five or six weeks, he became sensible of an increase of firmness in the leg, and from this time he was directed to diminish the size of the seton one thread every other day, until it was all removed. It continued to grow stronger every day, and in a short time after the wounds healed, he was permitted to walk a little upon it, when splinted and tightly bandaged, and in about three months the bone was firmly united.

CASE II.

John Smith, aged forty-one years, became a patient in the hospital in 1819, in consequence of an ununited fracture of the thigh bone, of twelve months standing. It occurred at sea, and at the same time several of his ribs were fractured. Thirty-six days after the accident, he arrived at Halifax, without having had any attention paid to the adjustment of the bones. After his arrival he states, that little notice was taken of his thigh, and no attempt was made to reduce it. He recovered without difficulty from the fracture of his ribs. The several means mentioned in case I. were

tried, but without benefit. The limb was considerably shortened from the obliquity of the fracture, and ends of the bone overlapping. No advantage attending the use of the means referred to, a seton was recommended. In the introduction of this, much more difficulty was experienced, than in the case of Hammond.

An incision was made on the inside of the thigh, a little to the outerside of the artery, so as to come down upon the centre of the ends of the bones, where they overlapped. The stillette was then attempted to be passed between the bones, but this was found altogether impracticable, from their very close contact, even though the limb was changed from one position to another. Instruments of different sizes were resorted to, but they could only be made to pass a very small distance. A gimblet was tried, but very little progress could be made. Having provided for the occasion a *carpenter's bit*, about the size of a large trocar, I found with this, a passage could be made with the greatest facility. Then by making an incision down to the end of the instrument, on the outside of the thigh, a large seton was readily conveyed through between the bones, by means of a long eyed probe.

After the expiration of three months, the thigh becoming firmer, and much less motion being felt between the ends of the fracture, he was per-

mitted gradually to lessen the size of the seton. The firmness continued regularly to increase, but it was not until after eight months had elapsed, that the thigh had acquired sufficient firmness to enable him to support the weight of his body, by the aid of a crutch.

It is now more than twelve months since the seton was introduced, and the bone appears to be firmly united. The shortening of the limb does not exceed three inches and a half.

A third case came under my care in the hospital, of an ununited os brachii, of several months standing. A seton was readily passed between the ends of the bone by the stillette and eyed probe, but the result of it cannot be stated, as the man left the hospital a week or two after the operation was performed. From the good health of the patient, however, there is every probability that it answered the same salutary purpose, as in the other cases.

A CASE

IN WHICH THE

RIGHT CAROTID ARTERY

WAS TIED FOR THE SAFE REMOVAL

OF A

TUMOUR.

BY VALENTINE MOTT, M.D.

JOHN M'GARRIGLE, born in Ireland, aged forty-nine years, a mason by occupation, was admitted into the New-York hospital on the 10th of November, 1818, for a carcinomatous fungus.

The fungus was situated upon the right side of the face and neck, and occupied a considerable portion of each. It extended from the inferior lobe of the ear nearly to the chin, and downward to a horizontal line, passing through the inferior edge of the thyroid cartilage.

It projected downward and forward, to the extent of about four inches.

At its most prominent part, there was an opening, nearly circular in its form, and about one and half inches in diameter; gradually diminishing

as it extended through the fungus, and terminated just within the margin of the inferior maxillary bone.

The edges were everted, and studded round with clusters of fungous excrescences, varying in size, from that of a pea to a marble; of a pale red colour, of a granulated appearance; extremely flabby in their structure, and bleeding upon the slightest touch.

From its cavity, there was a constant discharge of a thin acrid fluid, amounting to about a pint in twenty-four hours; extremely offensive, and excoriating the surface with which it happened to come in contact.

He seems to have been originally, a man of a strong and vigorous constitution, but at the time of his admission, it had suffered much from the disease. His countenance was pale; pulse feeble; he had no appetite, and his whole appearance evinced the utmost languor and depression.

About eight months previous to the appearance of this tumor, he had been cured of an ulcer situated on his lower lip, that had troubled him more than two years. He says it resembled a wart, that at times, it gave him severe pain, and that he had tried various applications without deriving any benefit until a cancer doctor gave him a "burning plaster," which brought out the core and then it soon got well.

The patient ascribes the origin of his disease, to a severe tooth-ache, which was attended with a swelling of that side of his face in April last. When the swelling subsided, he discovered a small moveable tumor very little larger than a pea, immediately under the margin of the lower jaw. It remained nearly stationary for two months, giving him but little pain and no inconvenience. It then began to swell and became troublesome; the pain was severe, and of that peculiar kind which characterizes carcinoma. He was advised by his physician to apply poultices, which were continued for five or six weeks. The tumour was then punctured with a lancet. A little bloody serum alone flowed from the puncture.

Shortly after this, the tumour began to increase with more rapidity, two other openings formed spontaneously, which soon communicated with the first, making the large circular opening before described.

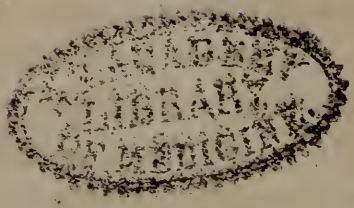
In consultation it was agreed, that an operation which would lessen the flow of blood to the fungus, and permit as much of the tumour to be removed as possible, afforded the only possible means of prolonging the existence of the patient, or of mitigating his sufferings. With these views, I accordingly performed the following operation, on the 14th day of November, at 12 o'clock.

The right carotid was taken up about an inch below the cricoid cartilage, and secured by two ligatures, but not divided in the interspace, in consequence of the depth of the artery, from the swelling of all the parts around the disease. Such was the enlarged size of the vessels, that it became necessary to take up several arteries and veins before the carotid could be exposed.

The tumour was removed by an incision commencing at the ear, opposite the meatus auditorius, and carried obliquely downward and forward, so that it passed over the base of the lower jaw near the chin—passed under the chin and terminated upon the outer edge of the anterior belly of the left digastric muscle. From thence downward to the thyroid cartilage, along the lower edge of this, across the sterno mastoid muscle, and terminated about an inch behind the mastoid process of the temporal bone, upon the os occipitis. Another incision from the termination of this, passed along under the ear to meet the commencement of the first. (See dotted line in plate I.)

The tumour was now dissected from the parts beneath, beginning opposite the thyroid cartilage, so as to detach the lower part first, in order not to have the dissection obscured by the flow of blood. In this way, the operation was carefully continued until the base of the jaw was exposed,

Pl. II.



then separating the cheek from above downwards, the morbid mass was removed. The jaw bone was denuded to the extent of about an inch, near the posterior angle, but only slightly carious. In this operation, almost the whole of the digastric muscle, anteriorly and posteriorly, all the sub-maxillary gland, part of the mylo-hyoideus, and stylo-hyoideus muscles were removed. The venous hemorrhage was very great from the large size of the veins, which returned the blood from the tumour; they were visible upon the surface of the tumour. Only three arteries were divided; the labial, and two smaller branches; one appeared to be a branch of the superior thyroidal, and the other of the occipital. They bled very little.

The operations occupied about one hour and fifteen minutes, and the patient lost perhaps nearly thirty ounces of blood, mostly venous.

6 P. M.—The patient is somewhat exhausted by the loss of blood, and the exertion he has been obliged to use during the day: complains of a good deal of pain in the wound, and has some difficulty in swallowing; he is also subject to a cough, which now becomes exceedingly troublesome; pulse feeble, small, and frequent; skin hot and dry. Is directed to take of Tinct. Opii gtt. lx.

Nov. 15. 9 A. M.—Has rested well during the night, and is comfortable when not disturbed

by the cough; has taken very little nourishment in consequence of the difficulty of swallowing; skin is natural; pulse less frequent, and fuller; tongue does not manifest any febrile disposition.

12½ P. M.—The difficulty of swallowing food, and the cough, are the only unpleasant symptoms under which the patient labours. Directed an anodyne draught in the evening. Contrary to direct injunction, the patient left his bed and walked across the floor.

Nov. 16, 12 o'clock.—Patient passed a comfortable night, and is considerably better this morning. State of pulse and skin, favourable; the former rather feeble; has had an evacuation from his bowels spontaneously; is directed to take as much nourishment as the state of his throat will permit; is allowed a bottle of ale.

Nov. 17, 12 o'clock.—The inflammation which rendered deglutition so difficult, has in a great measure abated; he is now able to take a sufficient quantity of nourishment, in consequence of which, his pulse is better, and his whole appearance has improved; he is now allowed in addition to the ale, a little wine. Suppuration had softened the dressings, and they appeared loose, in consequence of which they were removed, and the wound dressed. Its appearance is rather more favourable than was anticipated; but the whole of the disease is by no means removed.

The extent of the wound in length, is six inches, and three in width. There is a small black slough, just where the tumour was first discovered; below that and the chin, there is a cluster of exuberant granulations, somewhat resembling those situated on the edges of the opening of the tumour.

The wound made for taking up the carotid artery, is very florid; there is a slough at the bottom, which is becoming loose; its edges are highly inflamed by the acrimony of the discharge from the wound above, which is constantly running into it.

Nov. 18, 12 o'clock.—The patient is improved, he takes solid food with more facility, and is in every respect more comfortable. The wound was again dressed; its general appearance is somewhat more favourable; the discharge is very acrid, and excoriates the parts about the lower wound. He is directed to take freely of ale and wine.

Nov. 19, 12 o'clock.—Patient is still improving; the wound was again dressed; directed a lotion of ʒij. of Fowler's solution of arsenic, in ℥viij. of water, to be applied to the exuberant and spongy granulations.

Nov. 20.—The wound is improved; patient is also comfortable; appetite is good; bowels costive, is directed to take immediately, Rhei.

palmat. ℈j. and Sup. tart. potass. ℈ij. and to continue the other prescriptions as before.

Nov. 21, 12 o'clock.—Discharge is more abundant, and has inflamed the lower wound considerably, and excoriated the parts about it; his general appearance is better; cough still troublesome, more particularly at night; bowels free; no febrile symptoms.

Nov. 22, 12 o'clock.—The upper wound is much contracted, the posterior part of it is granulating and cicatrizing rapidly; the lower is still very much inflamed, and rendered extremely sensible by the discharge of the other; directed to cover the upper wound with flour, and lint, and to take the Spermaceti mixture whenever the cough is urgent.

Patient is improving, and would be very comfortable if not disturbed by the cough, which prevents him from resting well.

Nov. 23, 9 A. M.—Patient has not rested well, cough exceedingly troublesome; pulse still feeble; dressings were again removed; the wound above looks well; the lower is very much irritated by the discharge, its edges are highly inflamed, and bleed upon a slight touch; his appetite is good, and he takes sufficient quantity of nourishment, with wine and porter; is directed to take in addition to the other remedies, Tinct. Cinch. ℥ss. every two hours; the upper wound is gran-

ulating rapidly; all the old sloughs are removed; the ligatures have all come away; the suppuration has the appearance of healthy pus, but is extremely acrid; has no fætor.

Nov. 24.—Patient is in a fair way to do well. The cough remains by far the most troublesome symptom he has, it frequently prevents him from sleeping, and irritates the wounds by the motion it occasions; his general appearance is however improving, his appetite is good, and he is subject to no pain. The wound is dressed daily, its appearance is highly flattering, the whole surface now is florid, since the sloughs are removed; the granulations are, however, spongy in the anterior part, but at the other parts, they are perfectly healthy; the lower wound is less highly inflamed, and the discharge is considerable, but less acrid.

Nov. 27.—The patient is perhaps a little better than at the last report; cough is still frequent and renders him restless at night; it is now attended with a copious expectoration; deglutition is less difficult, and his appetite is reasonably good; he has been constantly free from fever, though his pulse is still frequent.

The wounds are dressed daily; the lower edge of the upper wound is contracting rapidly; along the upper edge there is a range of exuberant and morbid granulations, projecting a quarter of an

inch above the skin, partaking somewhat of the character of the original fungus.

The ligatures on the carotid came away to day, adhering to the potion of artery included between them, and separating nearly half an inch of artery from the points at which they were applied.

Nov. 30.—Patient continues to do well; his health generally is much better than before the operation; he is not as strong, but is in every respect more comfortable; the cough is an accidental thing, and no way necessarily connected with the consequences of the operation; it gives him more uneasiness at present, than the wounds themselves.

He prefers a sitting posture in bed, and is supported in that posture by a bed-chair. All his symptoms continue favourable, but his improvement is very gradual.

The wounds have not altered much in their appearance; the acrid discharge from the upper, operates very much against the amendment of the lower, and the granulations have somewhat the character of the original tumour, bleeding upon the slightest touch, and are exquisitely sensible.

Dec. 7.—Patient has not been as well as usual; cough prevents him from sleeping, and the motion produced by it irritates the wounds; expectoration is very considerable; he seems to be de-

pressed and anxious. The discharge from the wound is less acrid, and has allowed the lower wound to get into a much better state, it is now completely filled up, the granulations are, however, flabby, and do not appear inclined to cicatrize. The surrounding parts are not so florid and sensible as they have been.

His neck is drawn considerably to one side, and he is unable to move it, he thinks it partly owing to its resting constantly in one position on the bed chair. Is directed to lay in a recumbent posture, and occasionally to leave his bed, and sit in an easy chair; appetite not so good as usual.

Dec. 15.—The patient has recovered a little from his late indisposition, the stiffness of the neck still remains; appetite good; an anodyne procures him rest at night; the upper wound not improved much; the morbid granulations are at least half an inch above the skin, and in some places a little higher; he leaves his bed daily, and passes several hours in an easy chair.

From this time, his health appeared to be gradually on the decline. The lower wound in a little while healed up; the upper underwent but little alteration from this time forward. The cough continued to be very troublesome, the expectoration very copious, and evidently purulent. He became regularly hectic, accompanied with great emaciation, and died on the 3rd of March,

1819, having lived three months and nineteen days after the operation.

It will be perceived from the account of this case, that the cough was aggravated by the operation, but not produced by it. In three instances in which we have seen the carotid tied, a very considerable cough has attended, until suppuration was fully established in the wound, when it has subsided. My patient laboured under a cough before the operation, and there was a manifest increase of it for a week or more after its performance, but it by no means was the cause of its continuance, as the dissection after death will evince. The hectic symptoms arose from the diseased condition of the mucous membrane of the trachea and its bronchial ramifications, rather than the irritation of the ulcer left from the operation. His death may therefore with more propriety, be attributed to the pulmonary, than the fungous disease.

DISSECTION.

The carcinomatous granulations had risen a little above the surrounding surface, the size of the ulcer had considerably contracted since the ope-

ration, the lower jaw was exposed to some extent about the posterior angle, but very little carious.

On opening the thorax, the lungs appeared externally to be in a healthy state, with the exception of several adhesions of one lung to the pleura costalis. Upon dividing the trachea a little above the bronchiæ, it was found nearly filled with pus; the lungs when cut into, exhibited the same appearance at innumerable points, without the least vestige of ulceration at any part. The mucous membrane was rough, and thickened in the trachea, and also in the bronchial ramifications.

The abdominal viscera were sound, except the kidneys. In the tubular part of each was found a small abscess about the size of a nutmeg, apparently containing a healthy looking pus.

As this afforded me an excellent opportunity of examining the arteries on the right side of the head and neck, after the carotid had been tied, and not knowing that any such case had been recorded, I gladly availed myself of it, and separated the head, neck, and shoulders in the following manner.

Having sawed through the sternum at the upper part, so as to leave the clavicles attached, the superior extremities were removed from the trunk, and the dorsal vertebræ and ribs divided between the second and third, so as to leave it of

a bust like shape. This preserved the shoulders in such a way, that the subclavians and their branches might be injected. The ascending arch, and a portion of the descending aorta, were also included in the preparation.

To secure the filling of the arteries of the head and neck, a long pipe was passed up the aorta into the left carotid, and a fine wax injection was thrown in with great care, and as the subsequent account will show, with great success. The aorta was next injected to fill the subclavians and their branches. In the dissection, which was conducted with the greatest care and attention, I was assisted by David L. Rodgers and Alexander Vasché, two of my pupils, ardent in the pursuit of anatomical and surgical knowledge.

The following description of the arteries of the head and neck, is taken from the preparation, and they are delineated as far as possible in the annexed engravings.

1st. *The arteries that supplied the right side of the head and neck, after the carotid had been tied.* See plate II.

To give a regular description of these arteries, would be incompatible with the principle of collateral circulation; in as much as they are found to vary in different subjects, for "the inosculation

is never carried on by any particular set of vessels, but by all the arteries of the neighbouring parts."

Upon removing the integuments on the fore-part of the neck, and laying bare the carotid artery, from the innominata to the angle of the jaw, its caliber was found completely obliterated from its origin to its bifurcation; leaving a firm, lagamentous cord, which was divided into two parts, showing the place where the ligatures had been applied.

The vein and nerve were perfectly natural. The right subclavian was much enlarged, being equal in size to the innominata, from its origin to the scaleni muscles.

The left carotid was enlarged to twice its natural diameter, its branches increased in the same ratio, and assumed a tortuous and irregular course.

When we take into consideration the connexion which the arteries of the left, have with those of the right side of the head, and their free inosculation with the subclavian, we can have in our imagination, the branches that must necessarily supply the place of the right carotid. First, we have the branches arising from the subclavian, which are very numerous; secondly, those arising from the left carotid, which are still more numerous.

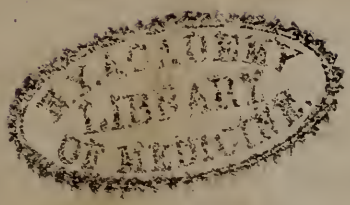
A minute detail of the numerous vessels which communicate with the carotid, would be tedious

and uninteresting, and would perhaps be impracticable, were it deemed expedient. Suffice it to notice the principal branches, and to give a general description of the smaller, but not less beautiful inosculations. We find then, arising from the right subclavian; first, the arteria thyroidea inferior; secondly, the cervicalis profunda; thirdly, the cervicalis superficialis; and fourthly, the vertebral arteries.

The inferior thyroid, as it arises from the subclavian, divides into four branches; two passing downwards and outwards, and the other two passing upwards; the latter are called the ramus thyroidea, and the thyroidea ascendens. These require particular attention from their large size, and the important supply of blood which they furnish for the support of the arteries of the neck. While the superior arteries were enlarged to twice their natural diameter, the two inferior ones, viz. the transversalis colli, and the transversalis humeri, although arising from the same trunk, and receiving their currents of blood in the most favourable direction, still retained their natural dimensions. But this phenomenon usually occurs in the circulating system. John Bell observes, "that in whatever way the demand of blood upon an artery or set of arteries is increased, the effect is an accelerated motion of blood towards that artery." And again, "any demand

Pl. III.

A. Anderson Sc.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of blood causes an enlargement of the arteries, leading to the part which demands the blood."

Guided then by this principle, we need not be surprized that the subclavian is so much enlarged from its origin to the scaleni muscles; for here it affords a supply of blood to new and important parts. The ramus thyroideus passing upwards to the thyroid gland, and anastamosing with the superior thyroidal artery, was one great source of blood, its branches were large and tortuous, forming communications in every direction, with those from above.

The thyroidea ascendens, is naturally a small and unimportant branch; it was here three times its usual size, mounting up the neck in a zig-zag direction, lying close to the vertebræ, forming frequent communications with the vertebral artery, dividing into many small branches at the upper part of the mastoid muscles, forming a beautiful plexus of vessels, with the mastoid branch of the occipital artery, and sending branches to all the muscles on the upper part of the neck.

The cervicalis profunda and superficialis, were much enlarged, sending frequent branches upwards to anastomose, with the descending branches of the occipital artery. By far the most important and interesting part of the circulation yet remains to be described.

2dly. *The arteries of the left side of the head and neck.* See plate III.

The left carotid passing up the neck equal in size to the innominata, furnished the greatest part of the blood for the right side.

In order to determine what particular arteries were enlarged, it is necessary only to enumerate the branches given off from the carotid, and more particularly those which arise from its forepart. Below the jaw there are four; *to wit*, the superior thyroid, the lingual, pharyngeal, and the maxillaris interna, which inosculate with open mouths, having the appearance of continuous trunks, and sending a plentiful supply of blood to the neck, and internal parts of the face.

The labial and temporal arteries leaving the axilla under the angle of the jaw, passing upwards upon the face, send off small branches in a beautiful and fantastic manner. Branches, which before were considered unworthy the attention of the anatomist, now rise into importance. The plexuses and inosculations formed by these branches, excite alike our surprise and admiration, and elucidate, in the most beautiful manner, the principles of collateral circulation. These arte-

ries, in general, are large and tortuous, and have frequent communications among themselves. The arteries most enlarged, were the mental, the inferior labial, the coronary, and the angularis. The optic artery was likewise much enlarged, beautifully anastamosing with the angularis.

So freely did these arteries inosculate with those of the right side, that before the operation was finished, it was found necessary to secure the labial artery in a ligature. This was clearly illustrated by the retrograde course of the injection, after death, which passed freely from the arteries of the opposite side, filling the superior portion of the labial, to the point at which the ligature had been applied. The temporal artery was of its natural size, receiving its blood from "all the arteries of the neighbouring parts," from the ascending branches of the occipital, the left temporal, the opthalmic, and the transverse facial. This free communication was distinctly shown by the injection, which passing down the temporal, completely filled the external and internal carotids, and several of their branches; particularly the inferior portion of the labial, which is seen emerging from under the jaw, to pass upon the face. The labial terminated at that point where the mental is given off. The mental itself, passed on to its usual

destination, and received blood from its fellow of the opposite side.

All of these arteries will be easily seen, and readily recognised, by referring to the plates.

Pl. III.

A. Anderson Sc.

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A CASE

OF

CARCINOMA OF THE PENIS

CURED BY AMPUTATION; AND SUBSEQUENT REMOVAL

OF THE

INGUINAL GLANDS,

SUCCESSFULLY.

BY VALENTINE MOTT, M.D.

James Porter, aged sixty-four years, was admitted into the New-York hospital on the 31st of August, 1819, with a carcinomatous disease of the penis. It appears that in the year 1805, while riding on horseback, he injured one of his testicles, which inflamed and suppurated, but healed readily, leaving every part in a healthy condition. Some time after this, while engaged on board of a vessel, where he was compelled to use extraordinary exertion, something suddenly "gave way" as he expressed it, about the groin, and upon examination, he discovered a tumour, but which does not appear to have been a hernial protrusion.

In about a month from this time, his penis became sore and very irritable, accompanied with a

scalding and discharge of matter. From his active and laborious employment, and the great irritability of the parts, he was in the habit of drawing down the prepuce to protect the glans from the friction of his dress. This ulcer, as he terms it, though probably an excoriation about the corona glandis, eventually healed, leaving the prepuce lengthened and contracted, at the extremity, so as to cover completely the glans, in the form of a phymosis.

He continued his business without experiencing much inconvenience from the phymosis until November 1818. At this time the glans penis enlarged, grew hard, and ulcerated, but he experienced very little pain. The prepuce had now contracted so closely, as very much to interrupt the flow of urine.

The ulceration commenced on the dorsum of the penis, about an inch and a half from the extremity. This was soon followed by others leading to the glans, and into the corpora cavernosa, having an irregular appearance, ragged and everted edges, and discharging a thin, acrid, and very fœtid matter. The penis, for half its length, had now increased in size, became knotty, hard, and irregular, with acute and lancinating pains darting through it. These were aggravated by changes in the weather from dry to moist, as well as vicissitudes from heat to cold.

On the 28th of September, 1819, the penis was amputated, with a catlin, previously drawing up the integuments a little; leaving a stump of about an inch in length. An artery was secured in each of the bodies of the penis, and one in the integuments upon the dorsum. The integuments were drawn over the end, previously applying a little lint, which with slight compression, readily checked the oosing of blood.

The inguinal glands on both sides, were considerably swelled and hardened, before the operation, but gradually diminished afterward, and returned to a natural state. From the appearance of the disease, as well as the character of the man, no suspicion could be indulged of its venereal origin.

After the healing of the stump commenced, a piece of bougie was worn several hours in the day, which preserved the orifice of the urethra sufficiently open for all the necessary purposes.

He was discharged cured, on the 11th of October 1819, with a particular injunction, however, to return immediately, if the glands in the groins should again enlarge. But going into the country at this time, one gland in the right groin was allowed to swell, inflame, and ulcerate, before he applied for assistance. He was re-admitted on the 3rd of March, following. The gland was large, occupying nearly the whole course of the crural

arch, spreading upon the abdomen, and downwards upon the thigh, having a large opening in it, of a sloughy look internally, with everted edges formed of unhealthy and bleeding granulations.

The right tumour was extirpated without delay, with a removal of the surrounding integuments to some extent, so as to avoid every part that was inflamed in the incision. This wound granulated, and healed kindly. When nearly well, the gland in the left groin appeared evidently to enlarge more rapidly; it was removed fourteen days after the first, when about the size of a hen's egg, and before the skin had become inflamed. He was again discharged cured on the 29th of May, and has since been attached to the hospital, as gatekeeper, and at present, September 14th, his health is in every respect perfectly good.

EXPLANATION OF PLATES.

PLATE I.

This plate will convey a very good idea of the tumour. The shaded part is intended to represent the disease far beyond the ulcerated, or fungous projections. It was wished to avoid all the morbid hardness in the incision, and as the dotted lines will show, this was very nearly accomplished. The cutaneous veins anterior to the ear, are seen much enlarged, and the arteries and veins on other parts of the tumour, and around it were in a very distended state.

PLATE II.

In this plate is represented the right carotid artery, obliterated from the innominata to the bifurcation. The success with which the circulation was carried on to the head through the inosculating channels, may also be seen in the enlarged anastomosing branches.

Fig. 1. Right bronchial tube.
2. Aorta.
3. Arteria Innominata.
4. Ramus thyroideus arteriæ thyroidææ.
5. Sterno-cleido mastoideus.
6. Thyroidea ascendens.
7. Scalenus anticus muscle.
8. Subclavian artery, after it has passed the scaleni muscles.
9. Transversalis humeri of its natural size.

a Transversalis colli.
b Cervicalis superficialis et profunda.
c Portion of the carotid separated by the ligatures.
d Obliterated carotid.
e Superior thyroidal artery.
f Inferior portion of the labial, as divided in the operation.
g Mental artery.

h Superior portion of the labial, where tied in the operation.
i Plexus of arteries formed by inosculations of the ascending thyroid, and a descending branch of the occipital.
k Descending branch of the occipital.
l External carotid filled with injection.

PLATE III.

This plate will give some idea of the success which attended the injection of the left side of the head and neck. Most of the more considerable vessels are here delineated, but the beauty of the preparation far surpasses the plate, in the minuteness with which the vessels are filled. All of these are preternaturally enlarged. Only a few of the arteries which are most enlarged, will be referred to in the explanation of this plate. There is no variety in the course or distribution of the arteries.

Fig. 1. The two portions of the sterno-cleido mastoideus muscle.
2. Left carotid artery as large as the innominata.
3. Left subclavian artery, external to the scaleni muscles.
4. Superior thyroid artery.
5. Labial artery much enlarged.
6. Mental artery twice its common size.
7. Par vagum raised up, and seen crossing the carotid artery.
8. Arch of the aorta.